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Already this year there is promise of an improvement in California gold mining. The rainy season is showing well, and it looks as if the long drought and scarcity of water which was so detrimental to gold mining in 1898 was broken. The mines which were obliged to curtail operations, or shut down altogether, can start up with a fair prospect of running through the season. Moreover, the interest in mining is very great, and preparations are being made to reopen several old mines which have not been worked for some time. Most of these, it is believed, can be made to pay under present conditions and with improved methods. The indications are that this will be an active year in California gold mining, with the possibility of a largely increased production.

We have frequently spoken of the loose way in which foreign returns of gold production are made, and the beginning of the year is a good time to call attention again to the matter. It is very desirable that all such returns should be made in fine gold or that the value should be stated. At present the reports in most cases are of crude gold or gold bullion, with no indication of its fineness or value. Consequently comparisons cannot be correctly made without a good deal of calculation, which may give an incorrect result, since the fineness of the bullion may vary from time to time in the same district. A ton of pig iron, of fine copper or of lead represents a certain definite quantity; but an ounce of gold may be anything from a full ounce down to six-tenths or even less. The difficulty of compiling correct statistics under these circumstances can easily be understood. A reform need not be a difficult matter, and we believe that a general agreement is possible.

The continued rise in the price of tin, which is now selling at nearly 8 cents a pound above the average quotations of January, 1897, appears to be in large part the result of a well managed speculative movement. There have been some elements which would naturally cause an increase in price, and a moderate advance was to be expected. The consumption for the past year has been somewhat greater than the production, and at the same time there has been some rise in wages in the chief producing districts—the Malay Peninsula and the Dutch East Indies. This rise was partly due to the demand for miners and partly to the short rice crops in India, an important point, since the great majority of the miners are Chinese and rely chiefly on rice for their support. The course of silver, on the other hand, had very little effect on the price of tin last year, since its fluctuations were small.

On this basis and on that of the small visible supply, which on January 1st was only 20,131 tons, parties in London and Amsterdam have taken hold of the market and have forced up prices to a point unknown for years. Their profits have been large, and they may be able to keep up the quotations for some time yet. It must be remembered, however, that tin is derived chiefly from alluvial workings, and in the Straits—and to some extent in Sumatra also—the output can be rapidly increased from known deposits with only a small expenditure of capital. Twenty or 22 cent tin will be a great incentive to larger production, and new supplies will have a tendency to bring prices down again to a normal level. For a time, however, the speculators have matters their own way.

The advance proof of Dr. Le Neve Foster's report on mining accidents in Great Britain in 1898, which has just been received, shows that the total number of fatal accidents was as follows, comparisons being made with 1897:

	1897.		1898.	
	Accidents.	Deaths.	Accidents.	Deaths.
In coal mines	868	930	820	900
In metal mines	29	49	31	33
In quarries	118	123	130	133
Totals	1,015	1,102	981	1,066

This shows a continuance of the decrease in loss of life which has been apparent for several years past. This decrease was wholly in coal mine accidents; but the coal mines are by far the largest class, both in number and in the force of men employed.

There were no accidents during the year which involved a large number of deaths. Only 12 accidents, causing 27 deaths, resulted from explosions of fire-dump and coal dust, which usually furnish the sensational accidents. As usual, by far the larger number of deaths—47.4 per cent. of the whole—were the result of falls of side or roof in coal mines; while in metal mines the proportion was even greater, 60.6 per cent. of the deaths being due to the same cause. No other single cause produced so many casualties.

At this early date it is impossible to give any particulars in the report; but Dr. Foster is to be congratulated on the promptness with which he has completed the collection of returns and presented the general results in tabulated form.

CORRESPONDENCE SCHOOLS.

We are pleased to note the great interest in correspondence schools which has been evoked by our reference to one of them in our issue of January 7th. Our correspondents ask very proper and sensible questions, some of which can best be answered by the officers of the school itself, and we therefore repeat that it will be well worth the trouble of any one who desires fuller information concerning the method and character of the instruction given to write to the United Correspondence School, 156 Fifth Avenue, New York.

The subject is so important, however, that we shall revert to it frequently and endeavor to answer some of the questions that have been addressed to us and to interest our readers all over the world in this really remarkable and valuable development of modern educational methods.

The correspondence school is not intended to be a rival of the existing universities or colleges. It may indeed often become a feeder of these institutions, either by preparing the students, or by so stimulating their desire for technical knowledge that they may decide to give up their entire time to its acquisition for the period required. It appeals most strongly, however, to the great number whose time is so occupied that they cannot attend the college or mining school, but who are anxious for improvement and advancement in their work. One or two of the letters given elsewhere show how these schools are regarded by men of practical experience who have learned enough to see what they could gain by adding a measure of theoretical knowledge to their present attainments. The direction which the correspondence school can give to the studies of practical men and workers is of the utmost value.

The "Engineering and Mining Journal" has been for years in frequent receipt of letters from its readers asking for advice and direction in their studies, and it has frequently been a source of regret that pressing editorial duties prevented us from responding very fully to such letters. This is just the work which the correspondence school takes up; and our experience shows to how large a class of people it can render great service.

CHANGES IN IRON AND STEEL MANUFACTURE.

In the manufacture of iron and steel very few new processes or very important changes can be noted during 1898. Many improvements have been made, but they have been chiefly in the direction of economies in production, the consolidation of plants and the increase in size of furnaces and converters.

A year ago we referred to the great furnaces of the Carnegie Steel Company at Duquesne, two of which were then recently completed and had begun to make pig iron. These furnaces were rated at 500 tons of pig iron a day, and have since been successfully worked up to 600, and for short periods to 700, tons a day, a rate of production heretofore unknown. Their success has been noted and the same method adopted by others. The Lorain Steel Company, now a part of the Federal Steel Company, has under construction two blast furnaces which are expected to make at least 500 tons a day each. The Ohio Steel Company has also two very large blast furnaces under construction, and the Jones & Laughlins Company has been engaged in remodeling its Eliza furnaces in Pittsburg and in adding a new stack. When completed this company will have four stacks, which will be capable of turning out 2,400 tons of pig iron daily. A plant which capable of turning out from 700,000 to 800,000 tons of pig iron in a single year is certainly far beyond the ambition of the iron masters of even one generation ago, and beyond the wildest dreams of that still earlier generation which built with so much toil the anthracite and charcoal furnaces of Eastern Pennsylvania and New Jersey, when 100 tons a week was considered an extraordinary production.

In connection with these enormous furnaces the use of the casting machine for making pigs has come forward prominently, some improvement of that kind being evidently necessary to handle so large a furnace production. The most prominent device of this kind is the Uehling casting machine, which has already come into successful use in this country, and is now being introduced abroad. It is to be noted that the Carnegie Steel Company, with its usual acuteness, has secured the control of the Uehling patents, and also of those covering the Laughlin casting machine, which is claimed to be an improvement.

Another improvement which is coming largely into use is the so-called direct process; that is, the transfer of the molten metal from the blast furnace directly to the steel converters, avoiding the necessity of casting, handling and remelting the pig iron. The successful operation of this process, which effects a considerable cheapening in the cost of manufacturing steel on a large scale, requires the use of a mixer or reservoir of molten metal, by which not only can a steady supply be furnished to the converters, but by mixing the iron from different furnaces the proper quality of metal can be assured. Some litigation has arisen over this appliance, the Carnegie Steel Company, which owns the Jones mixer patents, claiming that any use of such a mixer or reservoir of molten metal is an infringement of those patents. It has been successful in the preliminary legal skirmishes, but the trial of the case before the highest court is yet to come.

Without embodying any special new processes, the introduction of all these improvements has become necessary to large works operating with a proper regard to economy. The new Duquesne Works of the Carnegie Steel Company, present the latest and best type of a modern steel plant where the operations are carried on continuously from the ore to the finished steel billet, with the minimum amount of labor and the greatest possible economy. The Lorain plant of the Federal Steel Company will probably match them closely when its blast furnaces and other improvements are finished.

The cheapness and rapidity with which iron and steel are now produced in this country have attracted very general attention abroad. English engineers have long been studying our practice, and to these have lately been added French and German metallurgists, a number of whom, it is noted, have during the past year visited some of our producing centers, doubtless with the intention of profiting by what they saw there.

Other economies besides those directly connected with manufacture have also begun to be studied here and carried into practice. The "Engineering and Mining Journal" has often urged the utilization of the waste or by-products in coke and iron-making, and at last a commencement has been made here in this direction. Last year we referred to the Otto-Hoffmann coke ovens erected in the Connellsville coke region. These have been operated successfully through the year, as have also a plant of Semet-Solvay coke ovens at Dunbar, in the same district. The Tennessee Coal, Iron and Railroad Company has built and is now operating a plant of Semet-Solvay ovens at Ensley, in the Birmingham District in Alabama, and the Riverside Iron Company has erected 60 ovens of the same type at its plant at Benwood, W. Va. All this shows an encouraging advance, and we have no doubt that the success of these plants will rapidly overcome the somewhat unreasoning prejudice which many of our iron masters have entertained against the by-product oven. We do not think that the question of their superior economy has ever really been raised, but many persons, both here and in England, have held very strongly to the opinion that coke from the old bee-hive oven was so superior in quality as to counterbalance the saving. This has not been the experience in Germany and Belgium, and in this country at least the prejudice, which had behind it the weight of one or two well-known names, seems to be rapidly dying out.

In this connection we may note a movement which may possibly end in the development of a new, or, rather, the revival of an old, branch of the iron industry. The plants along the Atlantic seaboard which once supplied the local trade have, as a rule, been unable to compete with the Western or Pennsylvania furnaces, which were nearer the supplies of coal and ore. The great establishment which the New England Gas and Coke Company is now building at Revere, near Boston, while its primary object is to supply gas for power and illuminating purposes to the cities and towns of Eastern Massachusetts, will be able to sell a large quantity of coke at very moderate prices. If this plant is successful, as expected, others will doubtless be built near the larger cities. With cheap and abundant coke, and with supplies of iron ore which can be brought by sea from Cuba and elsewhere, it is quite possible that we may see a revival of the old industry in the shape of one or more large iron and steel plants on the seaboard. Such plants, moreover, would have exceptional advantages for supplying the export trade, which is an important consideration. Now that Cuba is under our control all further doubt as to the extent and regularity of supplies of ores from that source will be removed, and it is not impossible that Newfoundland may become a competitor.

An economical device which may be of much importance to our iron-makers is found in the experiments which have been carried on in Belgium and Scotland in the use of blast furnace gases for producing power through the gas engine. Experiments on a small scale at the works of the John Cockerill Company at Seraing, in Belgium, have proved so successful that the company has now installed engines capable of working up to 300 H. P., and proposes to enlarge its plant still further. In Scotland also one or two large plants are to be erected, and German iron-makers have taken hold of the question. A careful analysis of the operation of the gas engine at Seraing shows that where the consumption of from 600 to 700 cubic feet of gas under a boiler is required for the production of 1 H. P. per hour, from 100 to 150 cubic feet are sufficient to produce the same power through the gas engine; while difficulties from the variable composition and quality of the gases are easily overcome. We have, therefore, in every blast furnace, whether run with raw coal or with coke, a source of power which has hitherto been wasted entirely, or only very partially utilized, and which

is sufficient to provide a large part at least of the power required about the furnaces and other works, with possibly a surplus. The importance of this cannot easily be overestimated.

The Bessemer process continues to be by far the leading steel-making process in the United States. The open-hearth process, both acid and basic, is, however, making steady gains. The basic process will receive a considerable impetus from the success of the furnaces built last year by the Birmingham Rolling Mill Company at Birmingham, Ala., and the new steel works which the Tennessee Coal, Iron and Railroad Company has under construction at Ensley. Others will probably follow, and it is quite possible that the Southern furnaces which have been limited to the production of foundry iron will become equally noted for their basic steel. No progress has been made in the introduction of the basic Bessemer or Thomas process into this country, the plant of the Troy Steel Company remaining the only one in the United States.

NEW PUBLICATIONS.

"Twenty-ninth Annual Report of the State Board of Health of Massachusetts." Boston: Wright & Potter, State Printers, 1898. Pages, 714.

This volume embraces the general report of the Joint Board on the restoration of Green Harbor; a special report on the Sewerage and Water Supply of Cities and Towns; a discussion of sewage and its disposal; an examination of water supply, pollution of the rivers, filtration and sewage purification; a report upon food and food products, drug inspection, etc.; a report upon the use of antitoxin, and the usual statistics as to diseases. These reports of the Massachusetts Board of health are models in their way, very complete as to statistics, and carefully expressed in their deductions.

"Les Accidents Survenus dans les Puits, pendant les annues 1896 et 1897." By Victor Watteyne. Brussels: Polleunis & Ceuterick, 1898. Pamphlet; pages, 186; illustrated.

Considering the number of men employed, the shaft accidents in the Belgian mines are not numerous. Thus in the present report we find that in 1897 there were 11 accidents due to cables, cages, etc., with 5 deaths and 7 injured; two ladder accidents, with 4 deaths and 1 injured, and one fatal accident on the man-engine. There were no falls in shafts, but there were 7 accidents not specified, involving 4 deaths and 3 injured. In winzes there were 4 accidents due to cables, with 2 fatalities and 2 injured, and 2 deaths from causes unspecified. Thus the total shaft and winze accidents of the Belgian mines in 1897 were but 26, in which 18 men were killed and 13 injured. The report describes and illustrates a number of safety devices.

"Physico-Chemical Methods." By Dr. J. Traube. Translated by Dr. W. L. Hardin. Philadelphia: P. Blakiston's Son & Co., 1898. Pages, 238; illustrated. Price, $1.50.

The author has extended the range of physical tests of substances much beyond former usage. In the preface to the German edition Dr. Traube calls attention to the ever-widening application of physico-chemical methods in the many branches of chemistry. He says the vapor density, melting point, boiling point and specific gravity are no longer the only constants the determination of which is necessary in organic chemistry. Interest now is directed to other constants, in addition to these, and Dr. Traube devotes attention to the determination of electric conductivity, specific refraction, thermal constants, depression of the freezing point, vapor pressure, etc., as of fundamental importance in determining the constitution and molecular weight of substances, as well as in determining their identity and degree of purity.

The first chapter of the book is devoted to a description of the chemical balance, its adjustment and uses. A succeeding chapter is given to the specific gravity of solids, liquids and gases; Chapter III. relates to capillarity; in Chapter IV. the constant of viscosity is discussed; in the next chapter solubility is taken up; then follow discussions of the electric conductivity of liquids, expansion of liquids, melting and solidifying points, depression of the freezing point of solutions, boiling point and vapor pressure, elevation of the boiling point of solutions, specific heat, heat of fusion, heat of vaporization, measurement of crystals, index of refraction, spectrum analysis, rotation of the plane of polarization, act., all of which is followed by useful laboratory notes on general contrivances for measurement, such as the vernier scale, cathetometer, thermometer, barometer and other instruments. Evidently the physicist is invading the chemist's laboratory.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

"The Designing of Cone Pulleys." By Walter K. Palmer. Lawrence, Kan., 1898; published by the Author. Pamphlet. Pages 35; with diagrams.

"Mining Directory of San Miguel, Ouray, San Juan and La Plata Counties, Colorado, 1899." Denver, Colo.; the County Directory Company. Pages 168. Price $5.

"Report of the Commissioner of Education, for the Year 1896-97." Volume II., containing Parts II. and III. Washington, D. C., 1898; Government Printing Office. Pages 1264.

"Records of the Geological Survey of New South Wales, Volume VI., Part 1, 1898." Sydney, N. S. W.; Government Printer. Pages 75; with 10 plates. Price (in New York), 50c.

"Bulletin of the United States Fish Commission. Volume XVII., for 1897." George M. Bowers, Commissioner. Washington, D. C., 1898; Government Printing Office. Pages 436; illustrated.

"The Gold-fields of Australasia." By Karl Schmeisser and Dr. Karl Vogelsang. Translated from the German by Henry Louis. London, England, and New York, 1898; The Macmillan Company. Pages 254; with illustrations and accompanying maps. Price $10.

"Commercial Directory of the American Republics. Volumes I. and II., 1897 and 1898." Joseph P. Smith, Director. Washington, D. C.; Government Printing Office. Pages 1069 and 1589, respectively. Price, $5 per volume.

"The Elements of Physics. Volume I.: Mechanics and Heat." In three volumes. By Edward L. Nichols and William S. Franklin. New York and London, 1898; The Macmillan Company. Pages 219; illustrated. Price $1.50.

"The Blasting of Rock in Mines, Quarries, Tunnels, etc.; Part I. The Principles of Rock Blasting and Their Application." London; E. & F. N. Spon; and New York; Spon & Chamberlain. Pages 276; illustrated. Price $6.

"Handbook of Metallurgy. Volume I.: Copper, Lead, Silver and Gold. Volume II.: Zinc, Cadmium, Mercury, Bismuth, Tin, Antimony, Arsenic, Nickel, Cobalt, Platinum, and Aluminum." By Dr. Carl Schnabel. Translated from the German by Henry Louis. London and New York, 1898; The Macmillan Company. Pages, Volume I., 876; illustrated; Volume II., 732; illustrated. Price $10.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.

Letters should be addressed to the MANAGING EDITOR.

We do not hold ourselves responsible for the opinions expressed by correspondents.

Iron Stacks at Chlorination Works.

Sir: In answer to the question asked by Mr. J. H. Clotten, in the "Engineering and Mining Journal" of November 12th, 1898, with regard to iron stacks at chlorination works, I have some facts as to our works here.

1. The large smelting works at Playa Blanca, in Chile, South America, are provided with iron stacks entirely.
2. The ores treated are sulphides and the oxidized products, including sulphur, consequently escape by the stacks.
3. As there is also chloridizing roasting done, chlorine as well as sulphur passes through the stacks.
4. The stacks are plain sheet iron and are not lined with brick work.
5. There is no special protection of any kind given to the top of the stack.
6. The climate is dry, and it very seldom rains; but as the works are on the sea-shore, iron rusts quickly.

I may add that the stacks at Playa Blanca have been in use for six years, but they do not now show any signs of corrosion or of being eaten away. Ludwig Kloz.

Antofagasta, Chile, Dec. 16, 1898.

Correspondence Schools.

Sir—I notice in your issue of January 7th an article on correspondence schools. I am thinking of taking a course in mining and metallurgy and will write to the schools for circulars, but I think you may be able to give me some information. Do you consider such a course a practical one for a person who has never taken up the studies. Would a graduate of a correspondence school be as well qualified to fill a position as a graduate of the other mining schools? Any advice you can give me will greatly oblige. B, M, Thurston.

Chicago, January 16th, 1899.

Sir: The Correspondence School you speak of in your "Journal" of January 7th is a new idea to me, and I think it is a good one. There are plenty of men, like myself, who cannot go to school, but want to learn more of their work than they can in the everyday routine. They believe that they can better themselves by doing it, but are not sure how to go to work at it.

There are one or two points about it that I would like to know. Will the School give you directions for a special course—that is, one right in the line of your business? I see that it will teach metallurgy, but must you take one general course, or can you get one suited exactly to your case?

If they can do this, they are sure of one student, perhaps more, for I see very well how instruction, with the practical experience I have now, will put me in a much better place than I now have, and I think that is what most of us want. R. S.

Argentine, Kan., January 15th, 1899.

Sir: I have read your article on "Correspondence Schools," and this is the first time I have ever seen the plan explained. I should like a little further information. My case is just this: I have had plenty of practical experience, having worked in or around mines ever since I have worked at all. At one time I thought that practical work was everything, but lately I have begun to believe that there is something in books after all, and that I could get it out if I went to work at it. The great trouble with me has been to know what to read; there are so many books, and advice about them seems hard to get—that is good, reliable advice. Plenty of people will recommend a book, but when you have got it you find it is not what you want. It is out of the question for me to go to college; I am too old, and, besides, I have a living to make.

Now, what I want to know is whether the Correspondence School can tell me just what I had best read. I suppose from your article that it will, and if it does it will save me a great deal of trouble. It seems

to me that when it comes to reading I have been drilling away without knowing at what. If the school will tell me just where to work, it is what I want. R. J. B.

Leadville, Colo., January 14th, 1899.

Sir—I am well pleased to see in your issue of January 7th that you appreciate the importance of the new method of teaching by correspondence, and I am also glad to learn from your remarks that the school to which you referred—the United Correspondence School of New York—is giving a good course on mining, and is preparing to teach metallurgy also. This must prove a boon to many besides myself, for up to the present time there is only one correspondence school that gives instruction in mining, and that is a very indifferent course, leaving very much to be desired; while there is at present no course on metallurgy in any correspondence school except that to which you refer.

We are so accustomed to accept without doubt or hesitation whatever the "Engineering and Mining Journal" says, I feel certain already that this New York school which you so strongly endorse will give us what many of us desire, namely, an opportunity to get good up-to-date instruction in our profession without having to give up our positions, if we can afford to do that. I would be grateful if you would state your views of the relative values of correspondence schools and the mining schools which already exist at many of our colleges. J. S. P.

Denver, Colo., January 14th, 1899.

The Santa Fe Copper and Gold Mining Company.

Sir: This company has been organized under the laws of the State of New Jersey, with a capital of $2,500,000, divided into 250,000 shares at $10 each. Among the directors I notice Leonard Lewisohn, A. S. Bigelow, C. H. Cole, W. H. Coolidge, Edward A. Clark and others. This company owns the San Pedro Grant, confirmed by United States patent, and comprising 35,911 acres of land, part of which is fine grazing land and a large section mineral bearing; also 13 copper mines, four mines containing lead, silver and gold; the controlling interest in the San Pedro Placer Mining and Townsite Company; a 20-stamp gold mill; a tract of land near the railroad station, and coal mines in Cerrillos for the erection of a smelting plant adjoining the coal mines; all situated in Santa Fe County, New Mexico.

There are large reserves of ore on hand and in sight, so that smelting can be commenced and copper produced as soon as the smelting plant starts. The cost of mining will be less than $2 per ton; hauling to the mill, breaking, concentrating, altogether, $1 per ton of ore. The cost of smelting, refining, freight, commission, etc., and all other expenses on 3 per cent. ore is 4½c. per pound of fine copper, perhaps less. The average value of gold and silver in the ore is 3c. per pound of fine copper. There are two kinds of ore in the mine. Oxidized ores, the highest grade, need only sorting by hand and are sufficiently rich to go to the furnace without concentrating; the other ore is chiefly composed of iron and copper pyrite, and requires concentrating, which can be done without difficulty. The bulk of the ore, as sampled at different times by prominent mining experts, averages from 4 per cent. to 7½ per cent. of copper, and the value of the precious metal contained is equal to about 5c. per pound of copper; figures much higher than the 3c. per pound assumed as the average yield of the gold and silver above.

The ore, according to samples taken by several mining experts, varies between 3 and 24 per cent. of copper and about $4 gold per ton, with about 4 oz. silver.

One of the most prominent mining experts of this country ends his report as follows: "The importance of making the investment proposed in this report is, as already explained, by no means limited by the results which may be secured from the working of the ore now known to exist, chiefly in the White Mine, nor even to the probable opening of large new bodies of ore there and on the other claims of the company. The exploration of the great San Pedro Grant and the probabilities of opening profitable mines there would alone justify the investment of a large amount of capital, and the results there may easily overshadow in importance the groups of copper mines, which even now have so considerable a value.

"It is rare indeed that a mining property can show a net value substantially proven that will fully cover all the expenditures necessary for putting it in a position to do a large business, and for thoroughly exploring so vast and promising an estate as is the San Pedro Grant."

This company will have a reserve in the treasury of $500,000 in cash and $250,000 in stock at par. The syndicate which has started this company allows the stockholders of the old Santa Fe Copper Company to come in and participate in the new company at the rate of $5 per share in cash and 5 shares of the Santa Fe Copper Company for one share of the Santa Fe Copper & Gold Mining Company. This privilege will be open until February 15th, 1899.

It is refreshing to see that for once stockholders are not wiped out, as, for instance, in the late Huron Copper Company. The stock of the old Santa Fe Copper Company was really of no value at all. This property has been sold under judgment and decree of foreclosure of a mortgage, executed by the old company to the International Trust Company, of Boston, Mass., as Trustee, to secure the holders of bonds to the amount of $300,000, and was purchased at such sale by Mr. Leonard Lewisohn, of New York; various claims were set up against the title of the company to portions of its property, upon which claims and decisions have been rendered by the courts adverse to the company. Valuable mining lands and properties have been acquired by location and occupation by Mr. Lewisohn, and patents therefor have been applied for and are to be granted by the United States Government. A syndicate was formed to acquire all the properties formerly claimed by the Santa Fe Copper Company, together with the properties acquired by Mr. Leonard Lewisohn, and finally organized the new corporation.

It is proposed to connect the mines by rail with Cerillos, the nearest station of the Atchison, Topeka & Santa Fe Railroad, a distance of 18 miles, thereby cheapening the cost of production of copper materially.

New York, January 20th 1899 Ylas.

PIG IRON PRODUCTION IN GREAT BRITAIN.

While no full estimate of the pig-iron production of Great Britain in 1898 has yet been made, we have the returns of two important districts, which together produce about one-third of the total. The first is Scotland, and the statement for two years past is as follows, in long tons:

	1897.	1898.	Changes.
Production	1,187,637	1,190,264	Inc. 2,627
Shipments	282,734	292,272	Inc. 9,538
Consumption in Scotland	948,719	972,000	Inc. 23,281
Total deliveries	1,231,453	1,264,272	Inc. 32,819
Stocks, Dec. 31st.	464,353	390,345	Dec. 74,008

A marked feature of the Scotch iron trade has been for several years the increased home consumption and the decreased shipments. This has been chiefly due to the demands of the steel works, and there has been a corresponding change in the class of iron made, many furnaces having dropped foundry iron altogether and run on steel pig.

The price of Scotch pig warrants at the opening of the year was $9.90 a ton. The highest price reached during the year was $12.10, and the closing price was $11.89. The average for the year was $11.32, against $10.88 in 1897 and $11.24 in 1896. Owing to the larger proportion used in steel making, the warrant quotations are no longer an index to the total amount realized, as they formerly were.

Another important district is the Cumberland, or West Coast, where the entire output is hematite iron—or Bessemer pig, as we should call it. Nearly all the production is converted into steel. The production of this district for two years was as follows, in long tons:

	1897.	1898.	Changes.
Production	1,354,220	1,464,740	Inc. 110,520
Shipments	426,047	512,564	Inc. 86,517
Local consumption	1,020,420	1,054,200	Inc. 33,780
Total deliveries	1,446,467	1,566,764	Inc. 120,297
Stocks, Dec. 1st.	283,410	181,386	Dec. 102,024

The largest output ever made in this district was 1,608,500 tons in 1882. The change in methods is shown by the fact that in that year there were 63 furnaces in blast, making an average of 25,532 tons a year. In 1898 there were only 41 furnaces, and the average yearly output was 35,725 tons to a furnace.

The Cleveland and South Wales districts, as well as several others of less importance, have not yet made returns for 1898. All of them, except South Wales, are said to have increased their production.

REBATE ON THE DUTY ON IRON ORE.—A recent decision of the Treasury Department is of importance to plants on and near the seacoast, which can secure imported ores. The duty on iron ore is 40c. a ton, moisture in the ore included, and the decision is that there may be a rebate of this amount when the iron made from the ore is exported, whether in the form of pig iron, or after it has been worked into steel or finished material. This rebate is 60c. or 70c. a ton of pig iron.

A SIBERIAN COAL-FIELD.—The Kusnezk coal-field in the Tomsk Government of Siberia is placed on a par, by the Russian geologist, Sechtschurovski, with the richest in Europe, because of its great extent, over 45,000 square kilometres. The southern boundary, which is about 60 kilometres south of Kusnezk, extends eastward along the western slope of the Alatau Mountains, and westward in the direction of the Salairsk Crest, whence it diverges more or less while approaching the Ina, a confluent of the Ob. The river Tom divides the valley longitudinally into two parts; and, as the rocks which inclose the coal seams in the neighborhood of Kusnezk are the same as those that occur at the banks of the Tom as far as Tomsk, it is considered probable that the coal basin extends to this point. In the southern portion of the coal-field, not far from Kaltanskoi, thick coal seams have been discovered, and in the southwestern portion, in the neighborhood of Beresovka, there are eighteen seams. The seams belong to the Jura formation, and their coal is of excellent quality. These particulars are given in a paper by Mining Engineer Gribassovy on mines and works in Siberia, published in the Siberian Trade and Industry Calendar, Tomsk, 1898.

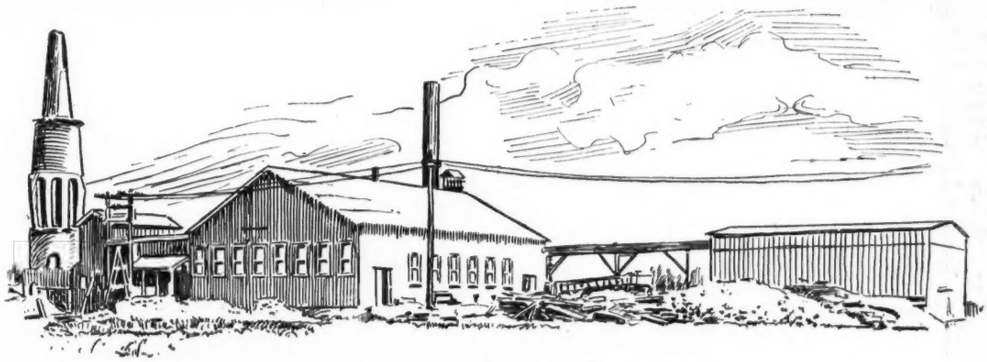
WIRELESS TELEGRAPHY.—At a recent meeting of the Vienna Gewerbeverein, Prof. Zickler, an Austrian savant, reported on a new kind of wireless telegraphy which he has invented. While utilizing a light-electric phenomenon (first observed by Hertz) for the transmission of signs, he employs the invisible ultra-violet rays proceeding from a source of light, which rays have the property of setting free electric sparks at the receiving station. At the dispatching station the effective rays are produced by the powerful arc light of a reflector which sends them only in the direction of the receiving station, so that the possibility of the signs being intercepted in any other direction of space is excluded. Another property of these rays, viz.: their being absorbed by glass, is a means of preventing diminution of the cone of visible rays on its leaving the reflector. This is effected by closing the mouth of the reflector with glass furnished with movable glass plates. Consequently the effective invisible rays do not leave the reflector till its glass front is opened, and they produce in the receiver at the second station or terminus, the invention of Prof. Zickler, longer or shorter electric rays corresponding to the dots and dashes of the Morse alphabet, their length depending on the length of time during which the mouth of the reflector was open. It is easy to transfer these signs reproduced by the rays of an electric bell, a Morse electro-magnetic instrument or a telephone. Prof. Zickler showed his invention at the meeting, and with the help of an electric arc lamp he transferred signs to a writing apparatus and to a telephone at the other end of the room. He has extended his experiments to distances up to kilometers, and he hopes soon by means he possesses for increasing the effectiveness to be able to use this kind of telegraphy for distances which will enable it to be employed for divers practical purposes.

NEW PLANT OF THE PORTLAND CEMENT COMPANY OF UTAH.

By Our Special Correspondent.

The plant of the Portland Cement Company of Utah, near Salt Lake, was destroyed by fire in June, 1898. The plant has been in operation about two years, and was built on the latest German lines. The raw material was reduced by crushers and rolls and then ground in a Griffin mill, made into bricks and burned in an Aalborg kiln, the resultant clinker being reduced in a ball mill. After the fire the plant was rebuilt, the building being entirely of steel, upon a larger scale and upon American lines. This new plant has now been in operation about three months, turning out about 150 barrels of Portland cement per day.

The raw material first passes to the crusher, where it is reduced to about 1½ in. diameter, and thence to a set of Cornish rolls, where it is reduced so that practically all of it will pass a ½-in. screen. From the rolls it passes to the stock bins, of which there are four, two for the high lime rock, carrying about 50 tons each, and two for the low lime, carrying about 100 tons each. As the material passes to these bins automatic samples are taken of both the high and low lime rocks. These samples are carefully analyzed in the laboratory and the weighing machines, set so that a proper mixture is delivered at all times for final reduction, which is performed by a Clark pulverizer, reducing it so that 85 per cent will pass a 100-mesh screen. From the pulverizer the material is carried by elevators and conveyors to a large bin in the rear of the rotary kiln, which carries a supply at all times sufficient to furnish material to the rotary for 36 hours. The raw meal is taken from this bin by a conveyor at the end of which is a pugging device in which a small proportion of water is introduced so as to deliver the material to the rotary in a slightly moistened condition—the object of this being to overcome the difficulty which was experienced on account of the large amount of dust carried over into the flues by the draft from the kiln, and also to prevent the material from running in the kiln.



PLANT OF THE PORTLAND CEMENT COMPANY OF UTAH.

The rotary kiln is 50 ft. long and 6 ft. in diameter, and revolves at the rate of 2 revolutions per minute. This kiln is fired by means of powdered coal, a supply of which is always carried in the bin in the front of the kiln and delivered to the kiln automatically by a conveyor and pressure blower.

The clinker as it comes from the kiln is carried by an elevator to the cooling bin, from which it passes to a Williams mill which reduces it to about ⅛-in. diameter. From this it goes to a set of high speed rolls, which reduce it so that about 90 per cent will pass a 50-mesh screen and about 65 per cent a 100-mesh screen. From the rolls it is delivered to two tube mills, which perform the final reduction. From these mills it is taken by conveyors to the stock-house, which is so situated that it is accessible to two lines of railroad, the Rio Grande Western and the Oregon Short Line. The plant for grinding coal is located about 50 ft. north of the main building. Here the coal is reduced by a Griffin mill and carried by a conveyor to the bin in front of the rotary kiln.

The quarries of the company are situated about 9 miles east of the plant in Parley's Canyon, on the line of the Utah Central Railroad. Here the company owns a very extensive formation of argillaceous limestone that is found to exist in two grades, one carrying about 80 per cent. of calcium carbonate and the other about 72 per cent. These two grades are shipped to the plant separately and mixed as explained above, so as to afford the proper proportion at all times in the material delivered to the kiln.

The territory covered by the company's shipments includes Montana, Idaho, Nevada, Utah, Colorado and Wyoming. The production of Utah Portland was 25,280 bbls. in 1898.

MINERAL DEPOSITS OF INDO-CHINA.—Accordng to a paper by J. M. Bel, in volume xii. of the "Bulletin" of the Societe de l'Industrie Minerale, gold deposits exist in the low hills which border the French Territory on the Mekong, and several mining concessions have been granted there. So far, they have not proved rich, but it is hoped that with further exploration they will improve. Further eastward, iron ore and lead have been found with rubies in some places. In Lower Laos, and the Khas country, gold has been found both in alluvial deposits and in quartz veins. A silver-bearing galena has been found in the valley of the Se-Kemane and copper ore near Attopeu. In Annam there are coal mines near Tourane, and copper ore at Than-Hoa, where the outcrops were worked many years ago. The Annamites have obtained gold from placer workings in considerable quantities, but the locations are for the most part unknown to Europeans.

CONSUMPTION OF COAL FOR STEAM AT THE ANTHRACITE COLLIERIES.

Written for the Engineering and Mining Journal by A. DW. Smith.

The reports of the Pennsylvania State mine inspectors, and especially those of the Anthracite region, have stored away in their pages much that is valuable besides the statistics that relate to the destruction of life and limb. The office of mine inspector was primarily created for the protection of the miner, but the collection of general statistics has been gradually added to its duties, until they have assumed very useful proportions. Although the items of information aimed to be covered by the inspectors in their reports have been practically the same for nearly 20 years, it is only those of recent date that show a sufficient completeness and uniformity in the minor features to permit reliable conclusions, covering the whole region, to be formed. The quantity of coal used for steam is one of the items which has only recently received careful attention from all the inspectors. A little thought, even by those unversed in mining, will satisfy them that the consumption of coal for steam has been, and will continue to be, an increasing factor in the anthracite problem.

When a colliery is first established a comparatively small amount of power is required, for preparation, haulage, ventilation and pumping. As mining progresses the power for preparation remains about constant; but the haulage and ventilating plants will have to be increased; and the pumping plant, now that the coal above water level is practically exhausted, is one which will demand constant additions, as the workings extend and the strata become cracked and broken, tapping the water contained in the slates, shales, sandstone and wash above the coal, as well as the surface water in the neighborhood of the outcrops. The problem of mine drainage is being met by the driving of long drainage tunnels in the few localities that it is practicable—the most notable of these being the Jeddo Tunnel, 15,113 ft. long—and by the establishment of central pumping stations which collect and handle the water from two or more collieries; the plants of the Lehigh Valley Coal Company's plant at Hazleton and the Philadelphia & Reading Coal and Iron Company near Girardville mark the commencement of the consolidation of pumping plants.

Several collieries have been abandoned largely on account of the amount of water it became necessary to handle, although the coal tributary to them was by no means exhausted. The water problem has grown to be so serious that it seems conservative to assume that decidedly more than half of the 4,200,000 tons of coal which were consumed at the mines for steam in 1897 went to furnish the energy required by the numerous drainage plants.

With the increasing quantity of coal consumed at the collieries there have been gratifying improvements in the method of its consumption, so that to-day buckwheat, rice, barley and even culm have replaced the pea and chestnut of 20 or 30 years ago, and at a much less cost. Indeed, to the individual operator whose product of rice and barley coal is sufficient to keep the colliery in steam, its cost, or more properly its loss, represents only about 15c. per ton. The loss, however, to the carrying companies who receive a profitable rate of freight for carrying this coal to market is probably much more.

The writer has recently had occasion to look up the consumption of coal at the collieries, and has tabulated the results for the year 1897; for the purposes of this paper, however, the summaries of each field and of the region will no doubt prove sufficient:

Northern Coal Field.

Operator.	Shipments and Local Sales. Tons.	Coal Used for Steam. Tons.	Per Cent.
Hillside Coal and Iron Co.....	764,588	41,562	5.4
Delaware & Hudson Canal Co..	3,965,627	243,152	6.1
Delaware, Lackawanna & Western R. R. Co.....	3,436,958	320,635	9.3
Pennsylvania Coal Co.....	1,878,163	90,757	4.8
Lehigh Valley Coal Co.....	1,147,772	51,654	4.5
Lehigh & Wilkesbarre Coal Co.	1,668,370	181,031	10.9
Susquehanna Coal Co.....	1,154,728	136,624	11.8
Individual operators, First Dist.	2,312,113	203,736	8.8
" " Second "	2,005,216	67,195	3.4
" " Third "	2,902,831	186,303	6.5
" " Fourth "	2,124,408	122,590	5.8
Totals	23,360,774	1,645,239	7.0

The table just given shows the total consumption to have been 1,645,239 tons, or 7 per cent. of the marketed coal; this may be regarded as a very satisfactory showing, as it is only one-half the percentage that is consumed in the other fields. It is apparent that the

comparatively horizontal and undisturbed beds of the Wyoming Region with their much less frequent outcroppings are less pervious to water than the tilted, folded and frequently outcropping beds of the Lehigh and Schuylkill.

The Northern field, however, contains a danger peculiar to itself. Underlying the river flat, extending from Nanticoke to Pittston and for some distance up the Lackawanna, there is an old river channel or "buried valley" filled to its present level with glacial and river drift. This drift or wash varies from 50 to 300 ft. in depth and is as full of water as a rain-soaked sponge. The accidental tapping of this wash at the Hunt colliery some years ago caused its abandonment.

In 1897 the introduction into the mine workings of water from the "buried valley," through the cracking of the strata caused by a squeeze, threatened the loss of the Avondale and the adjoining Nottingham colliery, with which it is connected. It was only by large additions to the steam and pumping facilities at both places that the collieries were saved. Some idea of the magnitude of the work required is to be gleaned from the 48,355 and the 41,000 tons of coal consumed for steam at the Nottingham and Avondale, respectively, during the year, and the disaster did not occur until the middle of March. According to the report of the Mine Inspector, the inflow of water was estimated at 14,000 gallons a minute, or about 20,000,000 gallons a day; some other and perhaps later estimates have placed it at 10,000,000 to 12,000,000 gallons a day, the latter being equal to about 40,000 tons in 24 hours, or 14,600,000 tons a year.

A most discouraging feature connected with the "old river bed" is that there seems to be no end to the water which it contains, and when once tapped, pumping will have to continue night and day, day in and day out, throughout the life of the colliery, and perhaps beyond, in order to protect adjoining property.

The consumption in the Eastern Middle Field was as follows:

Eastern Middle Field.

Operator.	Shipments and Local Sales. Tons.	Coal Used for Steam. Tons.	Per Cent.
Cross Creek Coal Co.	1,187,680	148,792	12.5
Lehigh Valley Coal Co.	579,675	113,598	19.8
Lehigh & Wilkesbarre Coal Co.	463,664	104,106	22.4
Individual operators	2,681,347	410,191	15.3
Totals	4,912,366	776,687	15.8

The comparatively great extent of the worked-out area, as well as its steeper dips and large extent of outcrop, caused by its coals lying in separate basins, tends to make every colliery a wet one and places this field slightly in the lead as to the proportion of coal consumed for steam. Although the basins in this field are not so deep as elsewhere, the quantity of water handled must be very great, as 776,687 tons, or 15.8 per cent. of the marketed product, was used for steam purposes.

Western Middle Field.

Operator.	Shipments and Local Sales. Tons.	Coal Used for Steam. Tons.	Per Cent.
Philadelphia & Reading	4,848,387	686,574	14.2
Lehigh Valley Coal Co.	683,375	90,299	13.2
Union Coal & Mineral R.R. Co's	1,019,796	143,257	*14.0
Individual operators	1,796,111	171,194	9.5
Totals	8,347,669	1,091,324	13.1

*The coal sold locally at the Union Coal and the Mineral R. R. companies collieries is included in the quantity reported as used for steam, hence the percentage given is too high, say, 2 to 3 points.

Some few collieries in this field are rather light steam consumers, but as a whole the mines make considerable water, which seems to be pretty generally distributed, as the small variation in the percentages between the different interests would indicate.

Southern Coal Field.

Operator.	Shipments and Local Sales. Tons.	Coal Used for Steam. Tons.	Per Cent.
Lehigh Coal & Navigation Co.	1,423,391	129,893	9.0
Philadelphia & Reading	1,530,191	239,840	15.6
Lehigh Valley Coal Co.	38,925	12,318	32.0
*Summit Br. & Lykens Valley.	498,662	164,178	*33.0
Individual operators	1,432,944	137,525	9.6
Totals	4,924,113	683,754	13.9

*The coal sold locally at these collieries is included in the quantity reported as used for steam, hence the percentage given is too high.

Athough this field has the steepest dipping beds and the deepest basins, it is probably due to the still large amount of virgin and undisturbed territory which it contains that its steam consumption is practically the same in percentage as its Western Middle neighbor. It will be noted that the Summit Branch Railroad and the Lykens Valley Coal companies are very heavy steam users; their two collieries, Williamstown and Lykens Valley, are probably the most extensive in the field, and the Lykens Valley workings are the deepest in the anthracite region, as the slopes there attain a depth of some 1,700 ft. or so, vertically.

Summary of All Fields.

Operator.	Shipments and Local Sales. Tons.	Coal Used for Steam. Tons.	Per Cent.
Northern coal field	23,360,774	1,645,239	7.0
Eastern middle coal field	4,912,366	776,687	15.8
Western middle coal field	8,347,669	1,091,324	13.1
Southern coal field	4,924,113	683,754	13.9
Totals	41,544,922	4,197,004	10.1

The result may be summed up roundly by saying that the Northern Field, or Wyoming Region, in 1897 used coal for steam amounting to 7 per cent. of its marketed product, and the balance of the region 14 per cent., or an average of 10 per cent. for all.

THE FLORIDA PHOSPHATE INDUSTRY.

The increase in prices of phosphate rock in 1898, which was a very marked one, was exceedingly acceptable to the miners, after the long period of depression through which the industry has passed. The prices in 1897 left no profit to the miner, and only the larger and better equipped concerns were able to hold on. A number of the smaller operators were obliged to stop, partly on this account, and partly because of the increased cost of mining, due to the continued influx of water. Many of them also have realized that the deposits are not by any means inexhaustible, as was at first generally believed. After about nine years of exploitation and actual shipments of 2,134,895 tons, many of the deposits have been abandoned as exhausted, and miners are meeting with increasing difficulties in their work. While in 1898 production was stimulated, the increase in output did not more than meet the growing demand from Europe and of the new foreign and colonial markets.

The following table will show the shipments from Southern ports within the past four years in long tons:

	1895.	1896.	1897.	1898.
January	15,780	16,996	12,924	11,682
February	17,252	16,853	20,668	26,850
March	31,252	37,155	37,243	34,049
April	41,445	36,559	32,608	22,274
May	45,053	45,846	45,715	31,992
June	31,027	16,511	32,837	31,948
July	21,284	15,296	22,639	53,114
August	14,588	19,914	19,292	27,409
September	25,388	25,116	59,966	46,961
October	27,783	30,605	27,664	21,476
November	18,160	38,402	20,184	30,595
December	17,003	23,618	18,537	22,155
Total	306,046	322,871	350,277	360,305

These shipments were distributed as follows, according to Messrs. Auchincloss Brothers:

	1895.	1896.	1897.	1898.
England	27,007	20,533	24,163	23,849
Scotland	3,054	1,038	5,957	6,000
Ireland	3,867	513	2,953	3,420
Germany	145,377	151,461	181,355	186,731
Belgium	7,033	27,214	22,954	38,903
Holland	52,724	47,235	53,039	64,309
Denmark	6,735	9,594	11,019	8,287
Norway and Sweden	9,304	12,534	7,442	9,378
France	23,534	6,986	13,931	.....
Italy	21,615	32,999	16,931	11,040
Russia	.....	1,607	3,613	.....
Austria	3,871	2,494	4,505	4,946
West Indies, Australia, &c.	1,925	8,663	2,415	3,642
Total shipments	306,046	322,871	350,277	360,505

A large part of the shipments made to Rotterdam and credited to Belgium are forwarded to the interior of Germany. The increase in shipments shows that Florida high-grade phosphate rock continues in favor with the superphosphate manufacturers of Europe. In 1890 when the movement commenced, there were shipped 11,206 tons, and in 1895 this amount had been increased to 306,046 tons, and in 1898 the total was 360,500 tons. The total shipped to European manufacturers during these nine years was 2,134,895 long tons.

The domestic consumption of this high-grade rock is comparatively small, amounting in 1898 to 3,642 tons, against 2,415 tons in 1897, 8,663 tons in 1896, and 1,925 tons in 1895. Most of this was sent to Carteret, N. J.

In addition to the increase in shipments, there has been a steady reduction in stocks, and according to Messrs. Auchincloss Brothers the stocks on hand in Florida on January 1st, 1898, amounted to 86,064 long tons, against 135,494 tons in the previous year. The shipments from January 1st to April 1st were 72,581 tons, against 70,835 tons in 1897. The stocks on April 1st amounted to 85,182 tons, against 133,714 tons in 1897. The shipments from April 1st to July 1st were 86,214 tons, against 111,160 tons in 1897, and the stocks on hand July 1st were 65,632 tons, against 94,514 tons in the previous year. The shipments from July 1st to October 1st were 127,484 tons, against 101,897 tons in 1897; while the stocks on October 1st had fallen to 43,579 tons, against 64,694 tons in 1897. The shipments from October 1st to December 30th, 1898, amounted to 74,226 tons, against 66,385 tons in 1897. From this it is evident that there has been an excess of shipments over production.

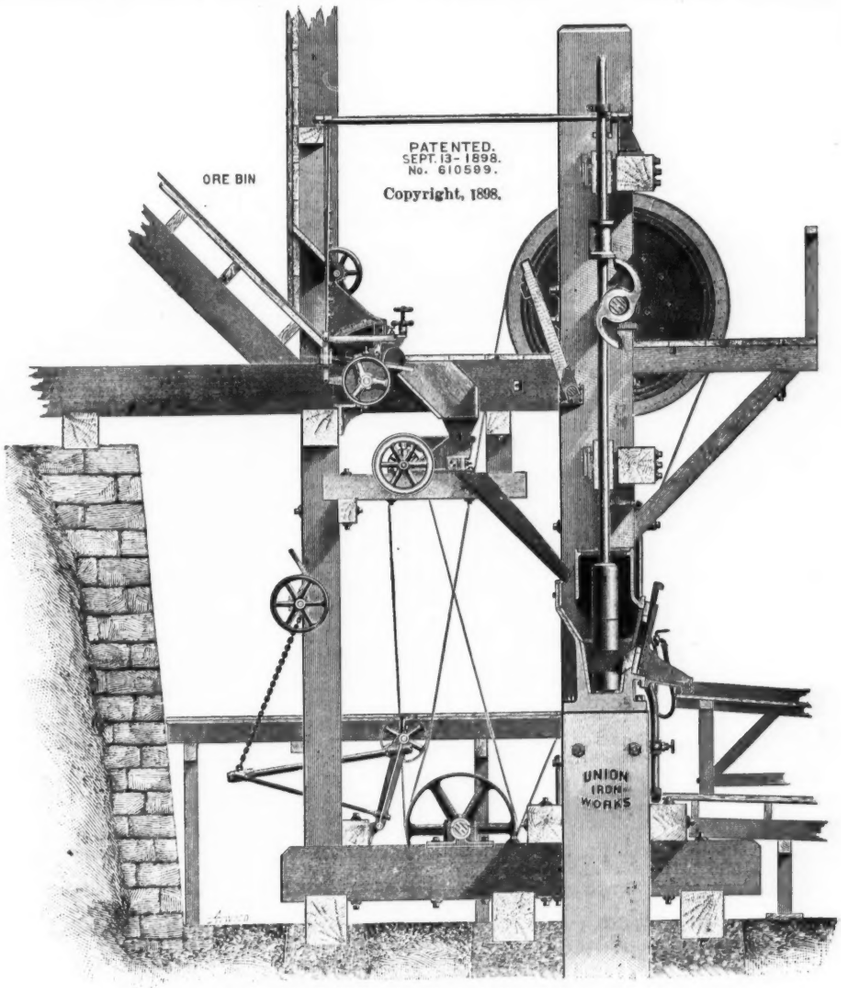
In speaking of the improved prices, it must be understood that the market price of to-day allows only a reasonable compensation to the miner for the increasing difficulties of mining, the depreciation of plant and the progresive exhaustion of his property.

Probably the largest shipper is the Dunnellon Phosphate Company. In 1898 it moved 74,662 tons of an average grade of 79.38 per cent. bone phosphate of lime, 2.33 iron and alumina, and 1.28 moisture, which compares with 49,089 tons in 1897 of an average grade of 79.10 per cent. bone phosphate of lime, 2.37 iron and alumina, and 1.57 moisture. The shipments of this company have been distributed very widely, though the greater part has gone to Germany.

ELECTRIC POWER AT COKE WORKS.—A plant of 120 coke ovens, all the mechanical arrangements of which are to be actuated by electricity, is on the point of completion, to be started early in 1899 at Orlau, in Austrian Silesia. The generating station comprises four 200 H. P. steam engines, each of which is coupled directly with its dynamo; and the three-phase current of 330 volts is transmitted to the electric motors, of which the following are the principal—one of 200 H. P. for driving a coal-washing plant, capable of turning out yearly 225,000 tons; an 80 H. P. for working the gas-exhausters; a 30 H. P. for the pusher, or discharger; a 60 H. P. for the wire tramway; a second of the same power for the traverser, and others for driving several pumps—all these in addition to the current required for the electric lighting. The work has been carried out for the Gebrüder Gutmann by the firm of Ganz & Co., of Budapest.

INCREASING THE CAPACITY OF THE STAMP MILL.

Owing to the fact that it is almost impossible to automatically feed finely crushed ore from an ore bin in consequence of the ore "bridging," the stamp battery has usually been called upon to do work that should, and could be more economically performed in a jaw crusher. This fact his been fully recognized by mining men, and various methods have been devised to overcome the difficulties and increase the output of the stamps by introducing the ore into the mortar of such size as to make each stamp a "pulper," and not an auxiliary crusher. None of the devices or methods, however, seem to have been successful, as they have met with but little favor. The Union Iron Works, of San Francisco, have recently brought out a device in this line that has, it is claimed, overcome all objections and difficulties heretofore presented.



INTERMEDIATE CRUSHER FOR STAMP MILLS.

By referring to the illustration herewith it will be seen to consist of the introduction of a small fine crusher between the ore feeder and the mortar. The feeder, located above the battery floor, is operated from the stamp in the usual manner, and automatically feeds the ore into the crusher, which, in turn, delivers it in ¼-in. cubes to the stamp. The introduction of this fine crusher between the feeder and the mortar adds very materially to the capacity of the battery. With 1,000 lb. stamps a daily output of 5 tons per stamp is claimed.

Owing to the increased capacity of the battery the plates employed are much wider than those used in the ordinary mill, and to provide room for dressing and cleaning the plates, mills built on this system are in units of 5 stamps each.

The system seems simple and practical, and is intended to increase the quantity of work done by a mill without adding materially to the machinery. The arrangement, as shown in the cut, is one easily made.

ELECTRICAL PROCESS FOR PRESERVING WOOD.—A new process is announced for seasoning wood by electrical action, says the "New York Times." The timber to be treated is put into a quadrangular tank of liquid, immersed to rather more than half its depth, and an electric current applied through a metallic conductor, so arranged as to distribute it throughout the area, and it is stated that in a space of four minutes the sap begins to exude at the lower end of the wood; in six hours it is all extracted. The wood is then placed in another tank from which a septic solution is forced into the pores by an electric-capillary method. If this process has successful results at a cost which will not be commercially prohibitory it may prove of great importance.

THE STUART PROCESS FOR THE PRODUCTION OF OXYGEN.

By Romyn Hitchcock.

In a paper read before the New York Academy of Sciences December 6th, 1897, I described, for the first time, a new method for the commercial production of oxygen, devised and patented by Prof. Ernest B. Stuart. At a meeting of the Academy on March 7th, 1898, I read a paper upon the application of oxygen to the manufacture of coal gas. I purpose on this occasion to cover the rather large field of both these communications, in a general way, adding some theoretical calculations which I think may be of some interest as indicating a promising direction of improvement in gas manufacture.

I have been acquainted with the experimental work of developing the new oxygen process since the beginning; but at the present moment I am unable to give definite information concerning the progress made toward its commercial application. A short account of the various processes that have been suggested or tried for the economical production of oxygen on a large scale will appropriately introduce the subject.

Priestly first made oxygen by the decomposition of nitre, in 1771; later, in 1779, by the heating of manganese dioxide. We owe to Berthellot the first mention of potassic chlorate as a source of oxygen. Other well-known reactions are the following:

$$2MnO_2 + 2H_2SO_4 = 2MnSO_4 + 2H_2O + O_2 \text{ ; and}$$
$$2K_2Cr_2O_7 + 8H_2SO_4 = 2K_2SO_4 + 2Cr_2S_3O_{12} + 8H_2O + 3O_2.$$

Mitscherlich observed the action of colbalt oxide on bleaching powder. At 85° the cobalt undergoes oxidation and deoxidation and acts as a carrier of oxygen:

$$CaOCl_2 + 2CoO = CaCl_2 + Co_2O_3, \text{ and } 2Co_2O_3 = 4CoO + O_2.$$

We come now to the germ of the famous Brin process. In 1851 Boussingault made the important observation that barium oxide when heated up to a certain temperature, about to a dull red, absorbed oxygen from the air, forming a peroxide, and that at a higher temperature the oxygen thus absorbed would be given off. All early efforts to utilize

*Read by title before Section C of the American Association for the Advancement of Science, Boston meeting, 1898.

these reactions as a commercial source of oxygen failed, because the barium oxide was found to lose its efficiency after a short period of use.

The process has been improved and perfected so that it is now in operation and it affords the cheapest source of oxygen hitherto commercially available. The first patents of the Brin Frères were secured in 1880 and 1885. Many improvements have been made since, and although the cost of oxygen has been reduced to about 30 cts. per 1,000 ft., even that price is too great to encourage its use on a very large scale.

The barium oxide is prepared by the decomposition of barium nitrate at a temperature of 880° C. The lumps are broken to about the size of a walnut and charged into metal retorts about 7 inches in diameter and of a length depending upon the size of the plant and the conditions of operating. These tubes or retorts are set vertically in a furnace and heated with producer gas up to a temperature of about 700° or 750° C. Formerly it was the practice to work at two different temperatures, one for the absorption of the oxygen and the other for driving it out of the combination. It was found more economical, however, to maintain the temperature constant and to facilitate the absorption of the oxygen by compressing the air in the retorts and to draw it off with a vacuum pump. The air is forced in at a pressure of from 10 to 15 lbs. and the oxygen drawn off under a vacuum of 13 or 14 lbs.

The yield of oxygen by this process is far below the theoretical amount. One pound of barium oxide should yield 1.25 cu. ft. of gas. In practice, under the old method of working, about 0.7 cu. ft. was obtained and the operation required about four hours. Working at constant temperature the yield is reduced to about 0.1 cu. ft., but the operation is repeated every 10 minutes.

A process which has been tried on a small scale depends upon the absorption of oxygen by cuprous chloride. The oxichloride thus formed yields oxygen at a dull red heat. The process was patented in 1865 by J. T. A. Mallet. The reactions given are:

$$2Cu_2Cl_2 + O_2 = 2Cu_2OCl_2; \quad 2Cu_2OCl_2 = 2Cu_2Cl_2 + O_2.$$

Considerable attention was given at one time to another process of Mallet (1869), based upon the difference in the solubility of oxygen and nitrogen in water. The coefficient of solubility of oxygen is 0.046; of nitrogen 0.025. By repeatedly compressing air over water and recovering the dissolved oxygen with an air pump, it is possible to obtain a gas of great purity. It is said that by the first compression and exhaustion the product contained 33 per cent. of oxygen, the fourth operation yielded 75 per cent. and the eighth 97.3 per cent. About the year 1871 or 1872 the city of Cologne was partly lighted, experimentally, with oil lamps fed with oxygen obtained by this process.

The production of oxygen by the decomposition of ordinary sulphuric acid by heat is well known. In the ordinary process of making sulphuric anhydride, by the distillation of ferrous sulphate, the heat is sometimes sufficient to effect the dissociation of the SO_3 into SO_2 and O. The gases recombine when passed over platinized asbestos. When ordinary sulphuric acid is used we have a molecule of water set free: $H_2SO_4 = H_2O + SO_2 + O$. By absorbing the SO_2 and the water the oxygen remains.

A somewhat complex process was patented by Kassner in 1889, based upon the production of calcium plumbate by heating lead oxide and chalk in a current of air up to about 600° C.

$$2CaCO_3 + PbO + O = Ca_2PbO_4 + 2CO_2.$$

This plumbate is treated with a solution of sodium carbonate and the precipitate of calcium carbonate and lead peroxide washed. The mixed precipitate heated to 500° yields oxygen. The reactions are:

$$Ca_2PbO_4 + 2Na_2CO_3 + 2H_2O = 4NaHO + 2CaCO_3 + PbO_2;$$
$$2CaCO_3 + PbO_2 = 2CaCO_3 + PbO + O.$$

Salomon (1890) proposed to treat the original plumbate directly in the retort with carbon dioxide, but the large volume of CO_2 required—about four times that of the oxygen obtained—rendered the process impracticable: $Ca_2PbO_4 + 2CO_2 = 2CaCO_3 + PbO + O$.

We now come to a process which, for our special consideration on this occasion is of particular interest—the process of Tessié du Motay, which dates from the year 1866. From 1869 to 1871 a plant was in operation in New York City and oxyhydrogen lights were tried for city illumination both in New York and in Paris. They were also used during the construction of the Brooklyn Bridge. But the company failed in 1871.

The Tessié du Motay process is based upon the fact that a suitable mixture of manganese dioxide and sodium hydrate at a temperature of about 300° C. absorbs oxygen from the air, forming a manganate. If this manganate is subjected to the action of steam at about 450° C. the oxygen is set free. By alternately passing air and steam over the compound at suitable temperatures an intermittent yield of oxygen is obtained, as by the Brin process, but without the use of pressure or exhaust apparatus. But there were serious difficulties in the industrial application of the reactions. The temperature was, indeed, considerably below that required by the Brin process, but it was difficult to prevent the compound from fusing, at least superficially. It is necessary to have a manganate which is porous or spongy and infusible at the temperature of operating (400° to 450° C.).

Much depends upon the composition of the manganate. It is prepared by crushing sodium manganate, which is then made into a paste with water containing 5 to 10 per cent. of caustic soda. The mass is then heated, gradually increasing the temperature up to a white heat. The contents of the crucibles are then broken up and charged into iron retorts. The retorts are rectangular in section and set in the furnace at an angle of about 60°, several sets superposed. On the lower side, within the retorts, perforated plates are arranged to insure free circulation of air.

I do not know of any plant now operating on this system, and the indications are that the process is too expensive for commercial use. The manganate must contain a certain proportion of water, the air must be dry and the steam must be heated to the temperature of operating or above it. The chemical reactions are thus given by Tessié du Motay:

$$MnO_2 + 2NaOH + O \text{ (air)} = Na_2MnO_4 + H_2O;$$
$$Na_2MnO_4 + H_2O \text{ (steam)} = MnO_2 + 2NaOH + O.;$$

The reaction may also be expressed thus:

$$2Na_2MnO_4 + 2H_2O = Mn_2O_3 + 4NaOH + O_2.$$

Fanta gives a more complicated reaction as follows:

$$10Na_2MnO_4 + NaOH + 10H_2O = 21NaOH + 5Mn_2O_3 + O_{15};$$
$$21NaOH + 5Mn_2O_3 + 15\ (O + N15)\ (O + N_4) = 10Na_2MnO_4 + NaOH + 10H_2O + N_{60}.$$

Various other processes have been proposed for the use of manganese compounds, but none of them seem promising. Parkinson, for example (1890), has patented the use of a spongy mass of alkaline permanganate and numerous attempts have been made to prepare such spongy masses by forming cakes with kaolin, bricks, etc., but all these processes require the use of expensive apparatus, air pumps, etc.

The new process devised by Prof. Stuart is based upon the Tessié du Motay reaction. The material used is sodium manganate, but while in the older processes a solid, infusible compound was required, the Stuart process is carried out with a manganate which melts at a low temperature, and it is used in the fused condition. The manganate is prepared by adding a sufficient excess of sodium hydrate to the ordinary sodium manganate to render the mixture liquid at the temperature most suitable for the reactions to take place, which is from 375° to 400° C.

The properly prepared manganate is charged into cast-iron retorts, rectangular in shape, set vertically in a furnace. The retorts measure about 2 ft. square by 8 ft. in length, and carry a charge of about 1,500 lbs. of manganate in each. Four such retorts set in one furnace are said to yield about 140,000 to 150,000 cu. ft. of oxygen in 24 hours. When the fully oxidized material is fused, steam is admitted at the bottom of the retort and the evolution of oxygen instantly begins. The gas comes off very rapidly at first, but in a few minutes the yield decreases and soon stops. Before the reaction is complete the steam is shut off and air is admitted. The oxidation is not quite so rapid as the deoxidation, but in practice the two operations are completed in the course of 10 or 15 minutes.

I refrain at this time from giving estimates as to the cost of oxygen prepared by this process, for the reason that experiments on a large scale must be relied upon to demonstrate the commercial value of the process. I am confident, however, from witnessing the operation of a plant which had a stated capacity of 1,600 ft. an hour that the cost will be considerably less than by any process hitherto proposed.

Regarding the advantages of the fused manganate over the solid compound, it is obvious that the yield of oxygen in a unit of time from a given weight of manganate is determined by the number of molecules subjected to the action of the air and steam; in other words, to the superficial area of the manganate exposed. Assuming for the moment that an infusible manganate can be prepared, which will retain its efficiency indefinitely, the physical aggregation of the molecules in the most porous condition conceivable for a solid compound practically restricts the reactions to the visible surface areas. It is not to be assumed that either air or steam will effectively penetrate the microscopic pores during the short time allowable for the reactions in practical operation. In the liquid, however, the conditions are totally changed, and, with properly constructed apparatus, the oxidation and deoxidation are effected rapidly and completely.

(To be concluded.)

THE PRIESTMAN OIL ENGINE.

Until comparatively a recent time certain obstacles prevented the successful operation of engines using safe oils. It is believed, however, that these obstacles have now been overcome and the success of the safety oil engine is an accomplished fact. The Aultman Company, of Canton, Ohio, has recently taken up the manufacture of the Priestman safety oil engine, which, aside from the character of the fuel used, differs from other gas and gasoline engines in several important respects. The accompanying cut will show the general form of construction. The most striking feature is, perhaps, the position of the fly-wheels, which are mounted between, instead of outside, the main bearings, as is the general practice. This method of construction is known as the "straight line" principle, and has been highly commended by prominent engineers. As the power transmitted by the connecting rod is absorbed by the fly-wheels without being first transmitted through the main bearings, the latter are relieved of a twisting strain. This fact is evidenced by the minimum of wear and of lubrication required. The design of the engine is simple and the working parts are very few. The only parts about the engine that are mechanically operated are the exhaust valve, the governor, a small power pump which is operated by an eccentric for pumping the oil, and a little device for making and breaking the electric battery circuit. The fuel employed is high-test petroleum, such as used in common house lamps and generally known as kerosene or carbon oil.

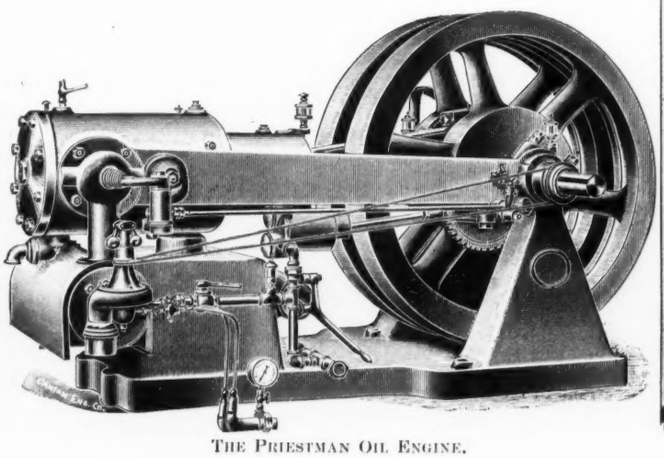
The following is the method of operation: A fine kerosene spray is injected into the chamber shown directly underneath the cylinder head. Here this spray is mixed with the proper proportion of air for supporting combustion, and the mixture heated by the hot exhaust gases, which are made to pass through an annular space surrounding this mixing chamber before being expelled into the atmosphere. The heated charge of oil spray and air is then drawn through the inlet valve into the

cylinder by an outward stroke of the piston. The inlet valve is not mechanically operated, but is opened automatically by suction, or, in other words, the pressure of the atmosphere. The return stroke of the piston compresses the charge, which is then ignited by an electric spark from an ordinary battery, and the resulting expansion of the heated products of combustion drives forward the piston, thus imparting the energy which is utilized for doing work. During the succeeding return stroke of the piston, the exhaust valve is held open mechanically and the dead gases are swept out of the cylinder, which is thus prepared for the reception of a fresh charge of oil and air. The cycle just described embraces two revolutions of the fly-wheels.

The chief departure from the gas engine principle of operation is in the treatment of the fuel, a considerable portion of which, if not all, is burned as a liquid spray instead of as a gas. The advantage claimed is, first, that the proportion of air and of a gas must be very exact to give an explosive mixture—about 10 volumes of air to 1 of gas. If this proportion is not closely adhered to in gas and gasoline engines, no explosions or very weak ones will result. This generally accounts for the difficulty sometimes experienced in starting gas and gasoline engines. The proportion of air necessary for burning a given quantity of liquid oil is many times the latter, and need not be so exact to obtain an explosion. The Priestman engine is very easy to start and no trouble is experienced from this source, as almost any mixture of air and oil will ignite.

Second, a very small portion of the oil spray within the cylinder coats the walls of the latter and so perfectly lubricates them that no other means is ever provided for the purpose. This is a distinctive and important feature, for no special cylinder oil is ever used, and no attention to this point is necessary. By reason of the positiveness of the cylinder lubrication, the cooling water surrounding the cylinder can be allowed to boil without increasing the friction, and with beneficial results. It is only necessary to have sufficient water for keeping the cylinder jacket full. This feature is advantageous with portable engines, and in localities where small water tanks are advisable.

The oil, which is kept in a tank—located wherever convenient—is pumped into the spray maker under a pressure of about 8 lbs. The oil consumption is about 1¼ pints per brake horse-power per hour.



THE PRIESTMAN OIL ENGINE.

The steam engine method of governing, that is by throttling the charge, is employed and impulses are taken regularly whether the engine be running empty or fully loaded, each charge of oil spray being proportioned to the load carried. The excellent speed regulation of the engine especially adapts it for electric lighting and a steady incandescent light can be obtained without the use of counter-shafting or extra balance-wheels. It is a fact, and one possibly not generally known, that, by using a given quantity of oil in the Priestman engine for operating incandescent electric lights, more illumination can be secured than if the same quantity of oil were burned in common house lamps.

It may be of interest to the reader to know the actual amount of work that can be secured from a small quantity of kerosene burned in a Priestman engine that is operating some of the most common classes of machinery. Take electric lighting for instance; one pint of kerosene will run eight 16 candle-power incandescent lights for one hour. If attached to a hoist, 100 tons can be lifted 4 ft., or 1 ton can be lifted 400 ft. by one pint of oil; and when used for pumping, the expenditure of this quantity of oil will raise 1,000 gallons of water 96 ft. high. In computing these figures, due allowances have been made for the average inefficiences of all apparatus employed.

As the Priestman engine is very simple in its method of operation and is entirely automatic in its action, it is admirably suited for mines where there is desired a cheap, safe and reliable motive power which can be satisfactorily handled by unskilled labor and which demands the least attention. The Aultman Company has recently added a number of improvements to the engine, amongst them being an air storage system whereby engines can be easily started without recourse to any preliminary hand pumping or turning of the fly-wheels.

GERMAN IRON PRODUCTION.—The production of pig iron in Germany for the 11 months ending November 30th was, in metric tons: Foundry, 1,179,154; forge, 1,429,219; Bessemer, 486,415; Thomas (basic), 3,645,501; total, 6,700,379 tons, against 6,273,672 tons in 1897.

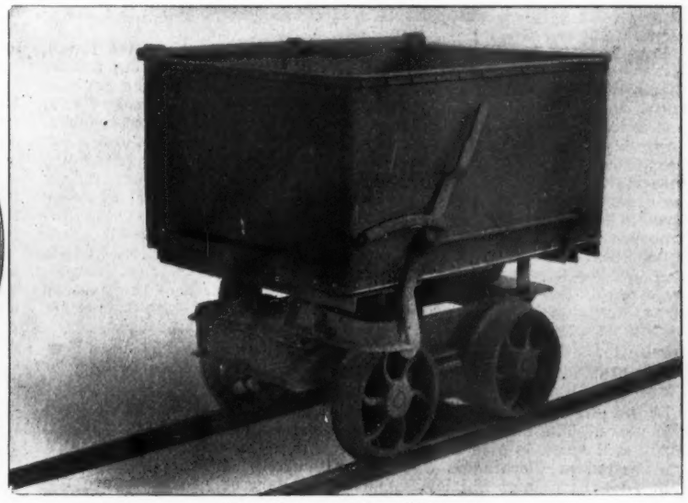
A NEW SIDE-DUMPING ORE CAR.

The accompanying cut is from a photograph of an all-steel construction side-dumping ore car, manufactured by the American Engineering Works, of Chicago. These cars are equipped with "Anaconda" self-oiling wheels and axles. The car box, as shown in the cut, is 48 in. long, 36 in. wide and 24 in. deep; the height from top of rail to top of car is 44 in. when equipped with 14 in. wheels, the shipping weight is 1,200 lbs., the frames are made of 5-in. channels; ends and sides of box of No. 10 sheet steel, bottom of ¼ in. steel plates, fastened in the corners with 2 by 2 in. angles. The box is re-enforced around the top with 1¼ in. angles, and the same size also is used in re-enforcing the door. The body of the car swings on cast-iron trunnions, which are fastened to the box with 5-in. intervening channels, and the frame of car by ⅜-in. plates.

The car dumps at an angle of 45 degrees or more, as may be desired. It is operated by a lever, as shown in the cut. When the latch is thrown forward it unhooks from the body, at the same time unhooking the door. The draw-bar is made of wrought iron running clear through and fastened to the frame at both ends. The photograph shows bumpers, which have been put on special cars for running in trains of 20 or 30, but generally the car is furnished without bumpers. This same type of car is built in any size or style to suit requirements.

THE SLATE INDUSTRY IN 1898.

In a recent issue we outlined the slate industry in 1898, and this week we give a detailed account of the work done in each State. During the past year the total production of roofing slate was approximately 1,082,605 squares, valued at $3,074,638, which compares with 895,372 squares, valued at $2,695,580, in 1897, and 699,100 squares, valued at $2,260,862, in 1896. Much the larger part of this output came from the Pennsylvania and the New York-Vermont regions. The increase in production is due largely to the export trade.



SIDE DUMPING ORE CAR.

Pennsylvania.—The slate industry of this State was largely dependent during 1898 on the export demand. Home trade was demoralized by very low prices. Many of the quarries reduced their scale of wages, which caused strikes, and in the case of the two largest producers—the Old Bangor and the Bangor Excelsior—the shutting down of these quarries until next spring. The selling price of roofing slate was so near to the cost of production that profit was very small or missing. On the other hand the laborers at Bangor formed a union to keep the wages paid slaters at a uniform rate. A formal understanding in this regard has also been arrived at in other sections.

The operators are constantly improving their methods of producing slate, and each mill that goes up has some new labor saving device. Several kinds of machines are in use for dressing slate which greatly facilitate the operation and enable the dresser to make the slate more uniform and truer to size than is possible by hand.

Notwithstanding the depressed condition of the industry much prospecting was done for new quarries, especially in the vicinity of Bangor and Pen Argyl, and several promising properties were opened during the year. Much stripping of top rock has also been done in the Lehigh Region. Then again foreign capital has interested itself in the slate industry. Years ago considerable prospecting was done near Carlisle, and although beds of slate were found, no attempt was made at development; but it will be undertaken in 1899.

The Bangor Roofing Slate Manufacturers' Association, which was formed in 1895, has practically gone out of existence, but negotiations for its renewal have been opened.

The Peach Bottom roofing slate is the most expensive to manufacture, owing in part to the fact that the deposits stand perpendicularly and the cost of quarrying increases rapidly as they are followed downward. The flow of water, it is said, increases with depth, but the quality of slate seems to improve. The slate is very strong and tough, and the cost of breaking it is very high. In manufacturing the roofing slate the blocks to be split must be sawed to the size required, from 12 to 24 in. in length, and split from end to end, as it cannot be split from the side to the right thickness. It is said that a slater can split more

roofing slate in most of the Northampton and Lehigh County quarries in one day than he can split in Peach Bottom in two or three.

The shipments of roofing slate from Slatington and Walnutport during the year 1898 amounted to about 192,000 squares, an increase of 11,000 squares over 1897, and nearly 22,000 squares more than in 1896. The output of school slates and blackboards shows a decrease as compared with 1897 and 1896, owing to the demoralized condition of the market. The shipments from Danielsville averaged about 5,000 squares of roofing slate per month. A good amount of slate flagging and blackboards was sent forward during 1898, but only a small quantity of school slates found their way from Danielsville. The entire product of this place is handled by three or four dealers, who fill an increasing export demand.

New York-Vermont—Vermont is a large producing State, next in importance to Pennsylvania. The annual yield of Vermont is something over $850,000, and there have been employed at the quarries between 1,000 and 1,500 men, principally Welsh. The shipments in 1898 were 25 per cent. more than in the previous year. Rutland County is the leading slate producing center, and here as many as 60 concerns have been operating during the current year. This slate belt covers a very large area, about 25 miles according to the State Geologist. It begins with the Lake Bomoseen Quarry, at Cedar Mountain, six miles north of Fair Haven, and extends southward through Poultney and South Poultney to Pawlet. Contiguous to the Vermont region, or rather, part of it, is that of Washington County, New York. The majority of the quarries at Pawlet have their offices in Granville, N. Y., and several of the companies operate properties both in Vermont and New York. Among the largest mills for making slate stock are those at Hydeville, in Rutland County. There are many other mills producing stock, but they are widely scattered, as are also the quarries. At Benson the American Black Slate Company has ceased working on its quarries and mills on Lake Champlain.

The only slate quarry that is being worked now in the eastern part of the State is that of the Dole-Brill Slate Company at Northfield. Several quarries were in operation in this neighborhood years ago, and were producing good slate, but lack of capital handicapped the enterprise.

New York is the only State where cherry red slate has been found, and here the producers maintain a pretty fair understanding among themselves as to the amount required by the market and the price at which it should sell. In fact, this slate is the highest priced of any, and is used principally for fancy roofs. Much mill stock is also made. Slate that is purple, green and olive in color is also produced, and when ground is used as a pigment and for other purposes. The quarries are principally at Granville and Middle Granville, and are operated by hand, horse and steam power. Extended operations were carried on by some of the companies, but the output of slate flour was somewhat less than last year. There are about 15 slate concerns at work in the State,

The total shipments of the Vermont and New York region in 1898 were 377,248 squares of roofing slate. This is somewhat more than was actually produced, as many of the quarries disposed of their stocks at the breaking up of the sea green pool. Nevertheless the production showed an increase in 1898 as compared with 1897 and 1896.

New Jersey.—Deposits have been worked at several localities in Sussex County and at the Delaware Water Gap, roofing slate being produced.

Maine.—The production of this State has grown less within the past two years. The output consists principally of roofing slate, although much mill stock is also sent forward. All the quarries now operated are located in Piscataquis County, particularly at Brownsville, Monson, Blanchard, and Shirley. Among the largest producers are the Monson Maine Slate Company at Monson, which has a capitalization of $1,000,000, and has an output of nearly 10,000 short tons of slate yearly. The Brownville Slate Company at Brownville has an output of over 6,000 squares roofing slate annually. The Deslauriers Slate Company at Shirley has a capital of $150,000, and produces about 1,500 tons of slate each year.

Massachusetts.—The slate in this State occurs in Worcester County, at Lancaster, and the Lancaster Slate Company is the only concern that has done any important work. It produces chiefly mill stock.

Minnesota.—Within the past year Levi Deetz, of Moden, Wis., has located a fine bed of slate in Carlton County, eight miles from Cloquet. The ledge is of considerable width and longitudinal extent. The slate is blue and blue-black in color, splits evenly and, it is said, has a beautiful cleavage. It is suitable for the manufacture of roofing plates, structural forms, and school slates. A quarry will probably be opened.

Michigan.—The largest operator in this State is the Michigan Slate Company, which has a capitalization of $500,000. This company is also operating a mill. All the quarries are in Baraga and Ingham Counties, and are mostly operated by steam. There are known to be good deposits of slate in the vicinity of L'Anse.

Maryland.—Besides the slate quarries that have been worked in the Peach Bottom region in the northern part of Harford County, one has been operated in Frederick and another in Carroll County, both of which have been worked by horse and hand power. Within the past few years the output of roofing slate in this State has fallen off, and little manufactured slate is being produced.

Virginia.—A good quality of slate has been found on both sides of James River, especially near New Canton, on the Slate River, in Buckingham County. Slate quarries have also been exploited in other counties, particularly in Amherst and Albemarle. There are half a dozen producers in the State, located principally at Arvonia. The Virginia Slate Mining Company of Lynchburg (Charles E. Heald, president), has leased the Snowdon quarries to Williams Brothers, of Bangor, Pa., who are producing about 250 squares per month, for which they pay a royalty of 25c. per square. The slate is blue in color, and the quarry property covers about 4,000 acres. Good transportation facilities have aided in placing the slate on the market at a comparatively low cost. The demand for export has been good, and the slate is shipped abroad from Newport News. Efforts are being made to interest new capital in the slate industry of this State.

Georgia.—All the slate quarries in this State are located in Polk County, at Cedartown and Rockmart. This slate compares with the Peach Bottom. It is a good nonconductor for electricity, which makes the slate valuable for the manufacture of switchboards. There were only three concerns producing during 1898, and the power used was made chiefly by hand and horse. The Southern Slate Company at Rockmart has suspended operations entirely. The Georgia Slate Company, of Rockmart; the Howard Hydraulic Cement Company, of Chattanooga, Tenn., and the Piedmont Slate Company are those actively working. The Piedmont Slate Company was formed this year to develop quarries near Cedartown. Lack of capital has been the main drawback to the slate industry in this State.

North Carolina.—The only place where slate deposits have been worked any way systematically is at New London, in Stanley County, and here the Stanley Slate Quarry has operated. T. P. Williams, of Alexandria, Va., who owns the property, says no slate was produced in 1898.

Tennessee.—At Chilhowee, in Blount County, the Tennessee Slate Company operated two quarries and a mill until the fall of 1896, when lack of transportation facilities necessitated a discontinuance of work. For its product the company received the highest market price. Not long since Charles H. Brown developed some property near that of the Tennessee Company, but without success. The slate is of excellent quality, and exists in large quantity; it is dark blue and light purple in color. Recently the Lonsdale Gold Mining Company was incorporated at Knoxville with a capital of $1,000,000, to quarry slate, mine precious metals and various minerals.

Arkansas.—In the middle of the year 1898 the Eureka Red Slate Company was incorporated at Mena, with a capital stock of $10,000, to work slate deposits in this State.

California.—For many years large deposits of slate were known to exist in this State, but the only work of importance has been carried on in El Dorado County, along the Big Canyon that runs north down to Chile Bar. During the past year efforts have been made to enlarge the industry, and a corporation, headed by J. Moss, of the San Joaquin Valley Railway, has undertaken to develop a slate quarry near Hornitos, in Mariposa County. The Shasta Slate Company also prosecuted work on deposits at Slatonis, in Shasta County. The Andrews & Sperry slate properties were started up, and the manufacture of roofing slate begun. The slate is elastic, is fine-grained, and retains its color, and the product from El Dorado County has been consumed locally, much of it appearing on the buildings of the leading cities of the State. In this county renewed efforts have been made to develop properties on a larger scale.

For some years the Chile Bar Slate Quarry has been operated three miles north of Placerville, and for a time its output averaged one ton of marketable slate to every 15 tons of slate worked. The slate it usually produced was roofing varying in size from 12 by 6 in. up to 12 by 24 in., split five to the inch. The El Dorado Big Tunnel Company, originally located as a gold mine, at one time produced some slate from the same belt as that of the Chile Bar Slate Quarry, but of late nothing has been heard of it. The San Francisco Slate Company also controlled 640 acres of slate bearing land near Chile Bar, and operated by water power, but this also has become inactive. During the past year the Strahley Slate Quarry at Kelsey, after an idleness of four years, made preparations to reopen with 30 men. It is said that this quarry is considered one of the best in the State. Other efforts have been made to revive the slate industry in California, but as yet the production is small. Consumption of roofing slate is greatly interfered with by the cheapness of redwood shingles.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

WHO ARE NOT FELLOW-SERVANTS.—A mine inspector, manager and pit-boss is a vice-principal, and not a fellow-servant with a miner who acts under his orders.—Westville Coal Company vs. Schwartz (75 Appellate Court Reports, 468); Appellate Court of Illinois.

RIGHT TO GOVERNMENT REFUND.—As between an entryman and a subsequent grantee, who is in possession, claiming, through him, at the time an entry is cancelled, the grantee is entitled to the purchase money refunded by the Government.—Leete vs. Pacific Mill & Mining Company (88 Federal Reporter, 957); United States Circuit Court.

WHEN JOINT OWNER IS NOT NECESSARY PARTY TO SUIT.—A mine owner who did not sign an option contract executed by his two co-owners is not a necessary party to an action to enforce the contract, where there is nothing to show that he is not willing to carry out the agreement, and no relief is sought against him.—Stanton vs. Singleton (54 Pacific Reporter, 587); Supreme Court of California.

QUESTION OF NEGLIGENCE FOR THE JURY.—Whether one employed to "shoot" an oil well lowered the torpedo into the well, and dropped upon the torpedo the instrument used to cause explosions, was negligent in failing to make an effort to ascertain whether the torpedo had exploded, and in assuring those who were to use the well that the explosion had occurred, and in going away, though a doubt had been expressed as to whether there had been an explosion, was a question to be determind by the jury at the trial of the suit for damages.—Kepple vs. Pennsylvania Torpedo Company (7 Pennsylvania Superior Court Reports, 620).

A NEW OIL BURNING ASSAY FURNACE.

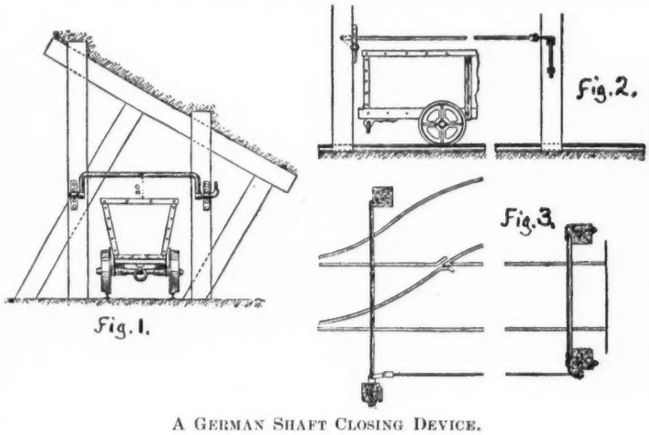
The White Manufacturing Company of Chicago has recently perfected a new assayers' furnace and heater, which will be at once recognized as a useful addition to the laboratory and assay office. The furnace is mounted on a malleable iron frame, making it practically indestructible. It is made in sections, and can be quickly changed from a muffle into a crucible furnace. It is light, portable and durable, and can bear rough transportation with absolute safety. It is lined with a new fireproof composition which will last a long time.

The heater is made so that kerosene oil as well as gasoline can be used for heating, thus enabling the operator to get fuel in any part of the world. The combustion is complete, producing a white heat so intense that work is done very quickly. The whole machine is strongly constructed and very compact in form for transportation, taking up but little room. All parts are interchangeable and removable. The illustration shows the general form and arrangement very fully.

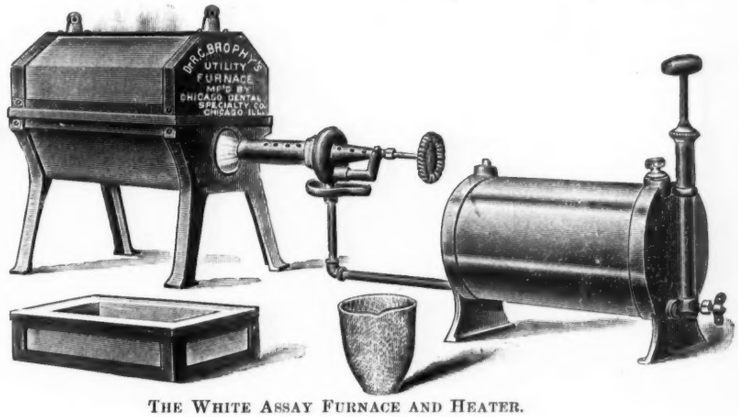
A GERMAN SHAFT CLOSING DEVICE.

The Prussian official reports on colliery improvements describe two self-acting fences for shafts and inclines brought out in the course of 1897, one by Herr Ilberg at the Vollmond Colliery, and the other by Herr Voglesang at the Amalia Colliery, both in the South Bochum mine inspection district. The Ilberg fence, which has given good results at the colliery mentioned, may be made at any colliery, but the gateholder must be obtained from the patentee.

The Vogelsang closing arrangement, shown in Figs. 1, 2 and 3, consists of a fence (No. 1) set up close to the shaft, and also of a second fence (No.), which is set up from 4½ to 5m.—depending upon the length of the points at the landing farther in the road. As seen in the side view and plan, both these fences are connected by a draw-rod, owing to which, directly the fence (No. 2) a little way from the incline is closed, that at the incline itself (No. 1) will be brought to the position of open, when it will serve for the firm iron rod, set 20 cm. above the top of the tub, that is prescribed by the regulations. The second fence (No. 2) is opened sideways with a turning movement, which may either be communicated through the draw-rod by the closing of fence No. 1, or directly by the loader, in which latter case the position of fence No. 1 will be immediately changed through the rod from open to closed. This closing arrangement combines great simplicity with the further advantage of working well even with measures subject to movement, so that it can be employed in all cases.



A GERMAN SHAFT CLOSING DEVICE.



THE WHITE ASSAY FURNACE AND HEATER.

QUESTIONS AND ANSWERS.

(Queries addressed to this department should relate to matters within the special province of this periodical, such as mining, metallurgy chemistry, geology, mineralogy, machinery, supplies, etc. As it is manifestly impossible ot devote space to all the questions and notes constantly received, preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot here undertake to give professional advice on problems requiring special investigation and which should be obtained from a consulting expert. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers should send their names and addresses. Anonymous questions will not be answered.—Editor E. & M. J.)

Graphite.—What is the practical way of separating or purifying graphite from its natural impurities, such as sand, clay, etc.?—M. O.

Answer.—Graphite can be separated from earthy mixtures, such as sand, clay, etc., by breaking up, so as to free the individual particles, and then concentrating mechanically. This is practiced at Ticonderoga, N. Y., and elsewhere, in separating graphite from a stony gangue.

Calcium Carbide.—Can you publish the general methods of manufacturing calcium carbide; cost per ton; approximate cost of a plant to manufacture 500 tons a year, with steam as motive power?—H. G. A.

Answer.—You should consult the exhaustive article on "Calcium Carbide and Acetylene," by Alfred H. Cowles, in "The Mineral Industry," Volume VI., pages 65-88. Cost of plant would be determined largely by location.

Chemically Pure Tin.—Can you advise a customer where he can obtain chemically pure tin about 1-32 in. in thickness, for use in the laboratory?—D. C. O.

Answer.—Chemically pure tin can be obtained from all the larger dealers in chemists' supplies in New York, and probably in other cities—such houses as the Roessler & Hasslacher Company, Eimer & Amend, Merck & Co., etc., whose cards are to be found in our advertising pages.

Borax Minerals.—Will you please give the names of some importers of the borax minerals—Pandermite, ulexite or colemanite. The Pacific Coast Borax Company puts out the last named mineral, but I wish to find importers of the others?—C. S. L.

Answer.—The Pacific Coast Borax Company controls the business in borax so completely that there is no regular importation of the borax minerals. Any of the large chemical houses, however, could probably supply you with a small quantity.

Cariboo Hydraulic Mining Company, British Columbia.—Can you give me any information of this company? Price of stock, last sale, last dividend, amount and number of shares?—G. A. M.

Answer.—The Cariboo Hydraulic Mining Company has property in the Quesnelle District in British Columbia, which it has worked steadily for several seasons. By the latest report the capital stock is $500,000 in $5 shares. The company reports some surplus, but no dividends, the money having been used in extending the operations. The stock is not quoted on any of the exchanges, so that it is not possible to give a current price. The company is owned chiefly in Montreal, Canada, where the principal office is.

Titaniferous Iron Ore.—Has titaniferous iron ore any commercial value? Is there a scale of prices according to percentages of iron and titanic acid?—R. H. R.

Answer.—Titaniferous iron ores have not at present any commercial value, and are not salable. Consequently there is no scale of prices such as you mention. Mr. A. J. Rossi, of New York, has been for years experimenting with titaniferous ores and has attained a certain degree of success, but has not brought his process into practical, commercial use. In Northern New York, Quebec, Rhode Island and elsewhere there are large deposits of these ores, which would be available for use if there were any market for them.

Titanium.—What are the commercial uses of titanium; which of its ores is the principal source of supply, and what is the cause of its high price?—G. R. S.

Answer.—For metallic titanium there is no commercial use or demand. The price is high simply on account of the difficulty of preparing it in a metallic form. It is one of those rare elements which are hardly more than chemical curiosities. There is a demand for some of its salts; titanium oxide is used in dyeing, and titanate of alumina finds some use in making carbons for electric arc lights. The quantity used is so small that no special variety of ore can be referred to. Consult "Engineering and Mining Journal" of January 8th, 1898, page 46; February 26th, 1898, page 256; also "The Mineral Industry," Volumes IV. and V.

Treatment of Gold Ore Slimes.—Are the slimes in the Transvaal treated for their gold contents? If so, how? What is usually the gold content of these slimes?—J. W. G.

Answer.—The treatment of gold ore slimes has been taken up within the past two years by the Witwatersrand gold mining companies. A recent report of the Chamber of Mines of the South African Republic shows 15 companies making returns of gold obtained from slimes.

2. Various processes are used. What is known as the lime or coagulation process is used largely, some variations in this being made at different mines. The Siemens-Halske process is used with success at some mines. We may add that in Western Australia a filter-press treat-

ment is used, which was described in the "Engineering and Mining Journal," of December 31st, 1898.

3. The gold contents at different Witwatersrand mines vary, the range being from $3 to $6 per ton, so far as returns have been made. The recovery is also very variable, from 50 to 90 per cent. being given. In the lower proportions, however, the results were obtained with new plants, and in some cases with plants largely experimental.

PATENTS RELATING TO MINING AND METALLURGY.

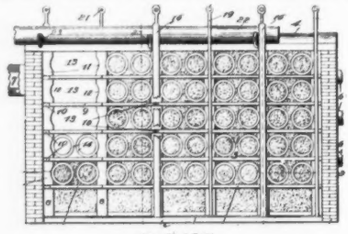
UNITED STATES.

The following is a list of the patents relating to mining and metallurgy and kindred subjects issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

Week Ending December 27th, 1898.

616,455. NOZZLE FOR BURNING PULVERIZED FUEL. Chas. M. Day, New York, N. Y. The combination with a casing, of an inclined sliding plate extending through the width of the nozzle and forming a continuous plane surface, and means for adjusting it longitudinally toward or from the delivery end of the nozzle for decreasing or increasing the opening and regulating the flow of mixed fuel and air to a combination chamber.

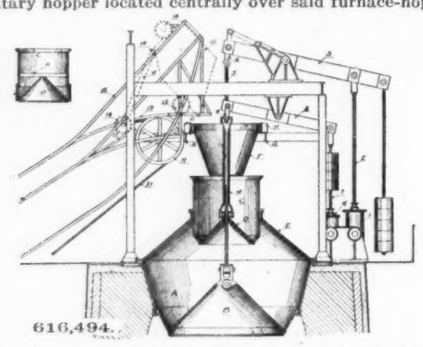
616,475. ZINC SMELTING FURNACE. Robert H. Lanyon and William Lanyon, Iola, Kan. A zinc-smelting furnace having side walls constructed of vertically-arranged pillars, plates having their ends resting on said pillars, which plates form a rest for the outer ends



616,475.

of the retorts within the furnace, there being air inlet ports left between the ends of certain of said plates, the space around the outer ends of the retorts between the pillars and plates being filled with fire clay, and means of conveying and discharging air through the ports to the interior of the furnace.

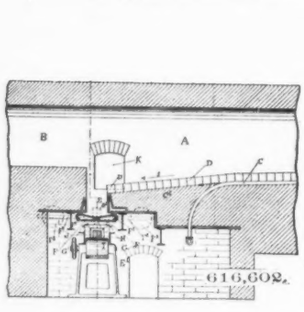
616,494. BLAST FURNACE CHARGING APPARATUS. Frank C. Roberts, Philadelphia, Pa. The combination of a furnace-hopper; a supplementary hopper located centrally over said furnace-hopper and pro-



616,494.

vided with an opening for discharging its contents into the furnace-hopper; means for closing said opening; chutes located on opposite sides of said supplementary hopper; means for moving said chutes toward and away from the center of said supplementary hopper, and a hoisting mechanism to feed said chutes.

616,659. ROCK OR ORE BREAKER. Philetus W. Gates and Thomas W. Capen, Chicago, Ill. Assignors to the Gates Iron Works, same place. The combination of a frame or base portion provided with an upper encircling portion, an annular shell portion provided with



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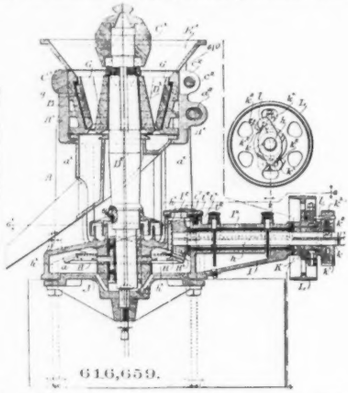


616,659.

crushing concaves inserted within the upper encircling portion, and having its upper portion projecting above the same, means for securing the upper encircling portion and the annular shell together, a spider portion encircling the upper portion of the annular shell, and means for securing it to the annular shell.

616,537. TRANSPORT OR CONVEYANCE OF MATERIALS. Friedrich Honigmann, Aix-la-Chapelle, Germany. Means for transporting coal and kindred material, comprising a receiving-hopper, a main conveying pipe connected therewith, filled with water, and having a delivery opening, a return pipe extending from said delivery opening back to a point adjacent the said receiving hopper, and a pipe to supply air, whereby the water is caused to circulate and convey the material.

616,567. APPARATUS FOR SUBMARINE MINING AND EXPLORATION. Calvin Brown, San Francisco, Cal. The combination of a supporting structure, a pneumatic caisson, a discharge pipe extending from the interior of the caisson upwardly, and having an open mouth within the caisson, a cover for closing said mouth, an air-supply, and a pipe connecting said air-supply with the discharge pipe.

616,599. MANUFACTURE OF ALLOYS OF COPPER AND IRON. James Burns, Verona, Pa. The improvement in the manufacture of alloys of copper and iron consists in first bringing the metals to a molten condition and mixing therewith, previous to pouring or drawing the same, a mixture of caustic alkali and resin.

616,602. FURNACE FOR HEATING BILLETS. Elbert H. Carroll, Worcester, Mass. Assignor to the Morgan Construction Company, same place. The combination with a heating chamber, provided with a downward opening for the delivery of billets, of a pair of swinging doors hinged upon each side of said opening with the free edges of said doors beneath the central portion of the opening and a conveyer placed beneath the free edges of the doors whereby the doors serve as guides by their downward motion to deliver a billet upon the central section of the conveyer.

616,637. APPARATUS FOR EXTRACTING GASEOUS PRODUCTS FROM DRY DISTILLATION OF WOOD. Adolph Schmidt, Cassel, Germany. In combination, a kiln, its discharge pipe for gases, an air-forcing fan, a heater between the same and the kiln, a pipe for leading the hot air through the heater to the discharge pipe, the air pipe having an air injector in the discharge pipe.

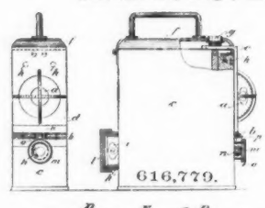
616,673. ELECTRIC MOTOR AND METHOD OF CONTROLLING SAME. Charles W. Kennedy, Rutledge, Pa. Assignor to Samuel Y. Heebner, same place. The method of controlling an electric motor consists in starting the motor as a two-pole machine with a set of field-coils in series with each other and subsequently changing it to a multipolar machine with all of said field-coils in parallel, and changing the internal resistance of the armature and maintaining the armature in balance uniformly around its axis.

616,688. CONVEYOR. Francis H. Richards, Hartford, Conn. The combination, with a carrying cable, of a plurality of directly-connected conveying elements journaled thereon at fixed points in the length thereof for oscillation independently of each other transversely to the direction of movement of the cable.

616,779. ELECTRICAL SAFETY-LAMP FOR MINERS. Carl Francke, Berlin, Germany. Combination of a main and an auxiliary burner, a switch adapted to throw the auxiliary burner into operation upon the failure of the main burner, a cap mounted to swing and to inclose the main burner and having a stop thereon, the switch also having a stop thereon adapted to engage the stop of the cap when the cap is in closed position, and a pawl-and-ratchet device co-operating with the switch to prevent the return.

616,793. MINING CAR. Anderson Maxwell, Barnesville, Ohio. Assignor to the Watt Mining Car Wheel Company, same place. The combination of the bars secured to the bottom of the car, parallel with the axles, the journal boxes rigidly secured to the opposite ends of the bars and kept in alignment thereby, and the axles journale din said boxes.

616,821. PROCESS OF AND APPARATUS FOR OBTAINING CRYSTALS. Johannes Bock, Radebeul, Germany. The process of obtaining well-formed, large, individual crystals from a saturated solution,



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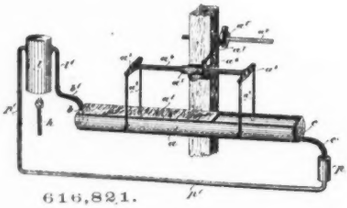
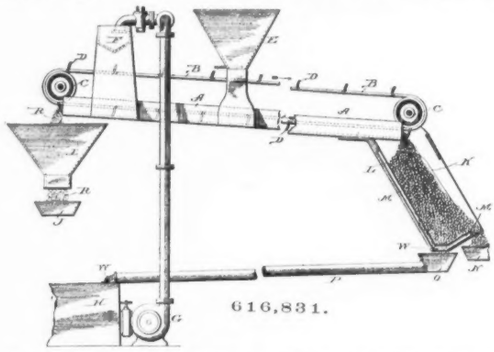


616,821.

consists in heating the solution, passing the hot solution slowly through a long, thin mass of crystals or like substance to those to be produced, and at the same time subjecting the solution and crystals to a gentle and relatively slow disturbance, and also to a gradual cooling.

616,831. FUEL WASHING AND FILTERING APPLIANCE. George W. Elliott, Dronfield, England. An open-top box filter having vertical sides with outwardly shelving angularly placed chutes to receive and deliver the washed fuel, fitted internally with a series of perforated plates extending around the sides and across the bottom



616,831.

in such manner as to leave a cavity space between the outer case and such perforated plates by which water may escape after percolating through a given mass of fuel collected and resting upon a layer of graded mineral stuff, together acting as a filter for purifying the water in passing through such mass; a collecting spout or conduit to convey the water into a cistern from which a pump withdraws the water and returns it to an inlet cistern.

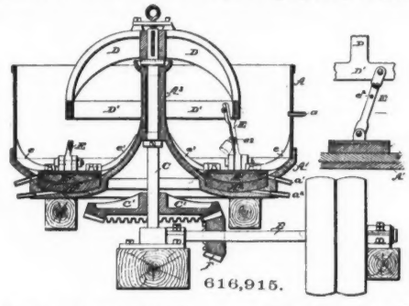
616,835. METHOD OF AND APPARATUS FOR MAKING CHILLED ROLLS. Frank Gorman, Mount Oliver, Pa. Assignor to the Lewis Foundry and Machine Company, Pittsburg, Pa. A mold for casting chilled rolls, having a matrix cavity inclosed by a chill-mold, said mold having at the end of the matrix-cavity proper a narrow annular recess arranged to form upon the end of the roll-body a relatively thin annular flange which constitutes a temporary addition to the length of said body.

Week Ending January 3d, 1899.

616,891. ELECTROLYTIC APPARATUS FOR TREATING METALS AND ORES. George D. Burton, Boston, Mass. The combination of a tank for containing an electrolyte, an anode disposed in said tank, a cathode disposed in said tank, a screen or deflector also disposed in said tank between the anode and cathode and adapted to distribute the ore or material being treated, said screen having a conductive surface connected to the negative pole of an electric source whereby it is adapted to collect a portion of the product reduced from the ore by the action of the current and the electrolyte.

616,906. ELECTRIC FURNACE. James A. Deuther, Boston, Mass. In an electric arc furnace, two opposite electrodes, a feed mechanism, a regulator operating independently of said feed mechanism and located adjacent to the anode for receiving the material to be treated from said feed mechanism and for supplying the same to the arc, and means for operating said regulator.

616,915. ORE GRINDER AND AMALGAMATOR. Jacob Berstle, Portland, Ore. An ore grinder and amalgamator consisting of a pan having a concave bottom A′ rising in the center in the form of a conical hub, and havng an annular recess at its lowest point containing detachable flush-laid dies A^3, a superposed rotating frame D D′,



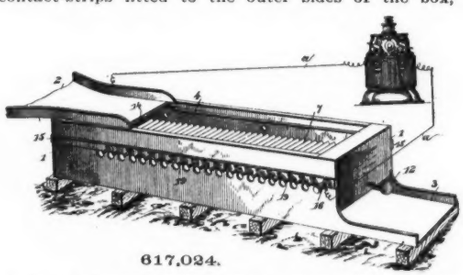
616,915.

inclined and pivoted trailing arm E having shoes E′ at their lower ends, said shoes being provided each with an outer scraper e and an inner scraper e′, and outlets a a′ a^3 for the water and material. G.—2.

616,926. ROASTING FURNACE. John B. F. Herreshoff, New York, N. Y. The combination of a hollow shaft having inwardly-extending pockets, combined with stirrer-arms entering said pockets with means for locking the stirrer-arms in said pockets and with means to permit circulation of a cooling medium through said shaft.

617,003 and 617,004. STORAGE BATTERY ELECTRODE. Theodore A. Willard, Cleveland, Ohio. Assignor, by direct and mesne assignments, to Sipe & Sigler, same place. The electrode, having a succession of shelves or projections about its outside, and a hollow body hermetically sealed at both ends.

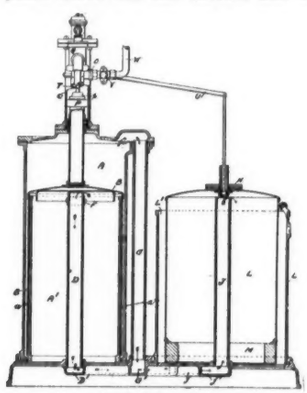
617,024. ELECTROLYTIC REDUCING AND AMALGAMATING SLUICE. Joseph H. Jory, San Francisco, Cal. The sluice-box, a series of plates having at their opposite side edges pivot-studs, metallic contact-strips fitted to the outer sides of the box, and having



617,024.

electrical connections therewith, and a series of conducting-screws mounted in each of said strips, the series of screws at each side of the box having their inner ends engaged with the pivot-studs of every alternate plate.

617,026. GAS PUMP OR COMPRESSOR. James Keith, London, England. In combination the water-motor, the pump comprising the cylinder and bell, a gas-holder L with its bell, a pipe D extending from the upper part of the pump but below the top of the bell and connecting with the gas-holder L, a second pipe G extending from the pump to a point above the bell thereof and connecting with the

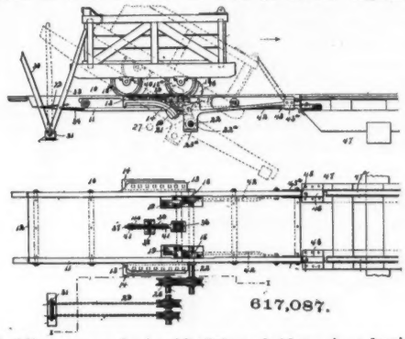


617,026.

said gas-holder L, an inner cylinder A′ between which and the pump cylinder the bell of the pump dips, a valve-casing E in the pipe, connections between the pump and gas-holder and the two sets of suction and delivery valves in said valve-casing one set being for the pipe D and the other set being for the pipe G.

617,083. MECHANISM FOR MAKING TUBES FROM METALLIC INGOTS. Leonard D. Davis, Erie, Pa. The combination of a larger rotating disk dished on its working face and having a working surface at or near its periphery; a smaller disk facing said larger disk with the line of its axis passing within the periphery of said larger disk and parallel to the axis of the larger disk and arranged to rotate in a direction opposite to that of the larger disk, and being provided with a working surface, which, by the position of the disks, is brought into opposition to the working surface of the larger disk; and a mandrel arranged in the line of travel of the ingot.

617,087. TIPPLE. Charles S. Farrer, Dunmore, Pa. The combination with a suitably-supported tilting platform or rail section, of mechanism adapted to hold the car on said platform, together with means



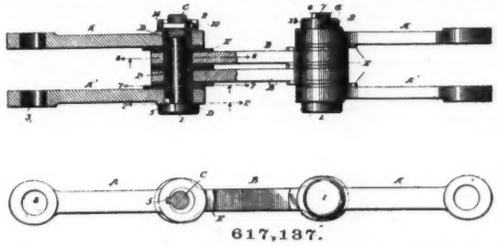
617,087.

for holding one end of said tilting platform in a horizontal position, said means being automatically actuated in one direction and positively actuated in the opposite direction by the car-holding mechanism when the latter is being moved in position to hold the car.

617,105. PICK. Frank Kortick, San Francisco, Cal. A pick with a removable head, secured to a socket by a key; the socket being bolted to the handle.

617,114. ELECTRIC MOTOR. Charles R. Meston, St. Louis, Mo. Assignor to the Emerson Electric Manufacturing Company, same place. The combination with a suspending tube, of a plate secured to said tube, a frame-plate secured to first plate, but insulated therefrom, a field-magnet core supported by frame, a fixed shaft depending from frame, an armature mounted on said fixed shaft, and fan-blades secured to said armature.

617,137. CONVEYOR DRIVE CHAIN. Alfred R. Anthony, Wilkesbarre, Pa. The combination with the links and pins of removable bushings in

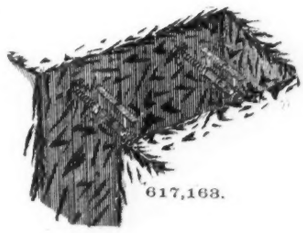


617,137.

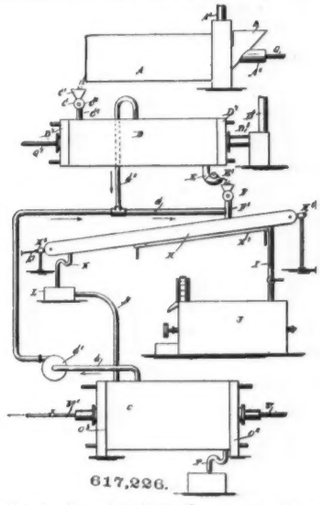
the eyes of the links and removable wearing-plates between the ends of the links.

617,163. MINING BRACE. David Jacobs, Pittsburg, Pa. The combination of a sleeve, of two externally screw threaded thrust-rods operating in the sleeve, one of which has a right-hand and the other a left-hand thread, plugs secured in the outer ends of said thrust-rods, clamps engaging the periphery of the sleeve, vertical standards formed integral with said clamps, a platform supported by said standards and means for locking said clamps and platform at any desired position on the sleeve.

617,226. METHOD OF AND APPARATUS FOR EXTRACTING BITUMEN FROM SAND. Augustus S. Cooper, San Francisco, Cal. The method consists in subjecting the material to the action of crude petroleum oil to soften and dissolve the bitumen contained in the sand, and then subjecting the mass to the action of a benzine



617,163.



617,226.

solvent for the bitumen, mechanically agitating the mass, separating the solution from the sand, evaporating the solvent from the asphalt, and returning the solvent in vaporized form to fresh portions of the oiled sands.

617,241. PROCESS OF TREATING BLAST FURNACE SLAG FOR CEMENT. Alexander D. Elbers, Hoboken, N. J. The process consists of superficially desulphurizing pulverized blast furnace slag by the application of a weak solution of nitric acid, and in alkalizing the superficially desulphurized slag by impregnating it with an alkaline solution.

617,299. POTTERY AND MAKING THEREOF. Charles O. Purinton, Hartford, Conn. Pottery composed of a clay base bearing on its surface a glaze composed of red lead and sand applied to the unburned base, both base and glaze being baked or fired at one and the same heat.

PERSONAL.

Mr. Samuel Tyock, mine owner, of Bodie, Cal., is in San Francisco.

Mr. John W. Mackay is still detained in San Francisco by illness.

Mr. W. J. Cartan, mining engineer, of Denver, Colo., is in San Francisco.

Mr. Benedict Crowell is examining placer deposits in Trinity County, Cal.

Mr. Thomas Weir has returned to Salt Lake City from a business errand to Chicago.

Mr. C. D. Galvin, mine owner, from Boise, Ida., has been looking at quartz properties in Trinity County, Cal.

Capt. Thomas Mein has returned to San Francisco from a tour of mine inspection in Mexico and Arizona.

Mr. J. P. Bresnahan has succeeded Mr. J. P. Harvey as superintendent of the Republic Mine at Republic, Wash.

Mr. Samuel Newhouse left Utah on Monday for an Eastern trip. He will spend a fortnight or more in New York.

Captain J. R. De La Mar arrived in Salt Lake City 10 days ago from a brief tour of mine inspecting to Mexico and Central America.

Mr. Frank Harris is again in Utah from a month's outing in the East. He states that he found unusual interest taken in mining in each city he visited.

John K. Mackenzie, of Dickman & Mackenzie, Chicago, Ill., is at present in Southwest Missouri examining a lead and zinc proposition for Chicago people.

Mr. J. S. Keefe, for 10 years traffic manager of the Illinois Steel Company, has resigned to accept a similar position with the new American Steel and Wire Company.

Mr. Fred Wild, Jr., general freight agent of the Colorado & Southern Railroad, has resigned to become general sales agent of the Colorado Fuel and Iron Company.

Mr. C. R. Hamilton, mining expert, has returned to San Francisco after investigating copper and gold properties in Shasta County, Cal., for an Eastern syndicate.

Mr. W. H. Routledge, superintendent of the Summit Consolidated Mines of El Dorado County, Cal., is in San Francisco on business in the interests of his company.

Dr. G. Tschermak, professor of mineralogy at the University of Vienna, has received from the Emperor of Austria the Austro-Hungarian decoration for science and art.

Mr. J. Parke Channing, of New York, has, in company with A. H. Ricketts, of San Francisco, been examining copper properties in the Little Backbone district in Shasta County, Cal.

Mr. F. W. Dow, mining engineer, of Zacatecas, Mexico, is at present in Chicago, where he is consulting with Chicago people in reference to a mine examination near Zacatecas, Mexico.

Mr. E. H. Coxe has resigned his position as mining engineer of the Sunday Creek Coal Company to become superintendent for the Boomer Coal and Coke Company at Harewood, W. Va.

Mr. Charles Hoffman, of San Francisco, son of C. F. Hoffman, the mining engineer now in Siberia, has charge of an engineering corps about to visit the South African coast on a prospecting tour.

Mr. Harry W. Treat, vice-president and secretary of the Van Anda Copper and Gold Company, has left New York for Van Anda City, B. C., on business. He expects to return on March 1st.

Mr. W. C. Reynolds, of Chicago, Ill., and D. Crowell, of Cleveland, O., have been examining gravel properties in the neighborhood of Weaverville, Trinity County, Cal., in the interests of Eastern capitalists.

Mr. Chas. F. Howe, consulting and mining engineer, of Chicago and Duluth, was in New York this week, and left for the West, where he has some professional work which will take about three months to complete.

Mr. Edmund Juessen, of the firm of Howe & Juessen, Spokane, Wash., is at present in Chicago. Mr. Juessen will investigate some gold mining propositions in the Buffalo Hump District, of Idaho, for Chicago people.

Mr. Charlemagne Tower, who has been United States Minister to Austria, has been appointed Ambassador to Russia. Mr. Tower took a prominent part in opening the great iron ore mines of the Vermilion Range of Minnesota in 1885.

Mr. Edward F. White, expert in the refining of sulphur, of New York, who has been serving in the engineer corps of the Navy since June last, is now on waiting orders. He is going to Colorado and the southwest on professional business.

Mr. E. J. Fowler, formerly superintendent of the smelter at Ouray, Colo., will leave Denver in a few days for Campo Seco, Calaveras County, Cal., to examine a large property, with the intention of erecting a copper smelting plant for a Chicago syndicate.

Mr. Roscoe H. Channing, formerly superintendent of the Genoa Mine at Sparta, Minn., who went to the front with Roosevelt's Rough Riders and served through the Santiago campaign, has regained his health and is to take charge of the Sparta Mine.

Mr. Robert W. Barrell, who has been with the Canadian Gold Fields, Limited, at Del Oro, Ont., has accepted the position of resident engineer for the Galena Mining and Smelting Company, of Galena, S. D., formerly the Edgemont & Union Hill Smelting and Refining Company.

Mr. W. Weston of Cripple Creek has just returned from the inspection of the properties of the White Hills Mining and Milling Company of Arizona, of which he is consulting engineer, and has now gone to report on the Battle Lake Copper Mines of Wyoming. He expects to leave for London about January 25th.

Mr. Eduardo J. Chibas, civil engineer, of New York, accepted the position as chief engineer and manager of the Guantanamo Railroad on January 1st, and is now at Guantanamo, Cuba. During December he examined and reported on some manganese mines near Santiago in the interest of the Carnegie Steel Company.

OBITUARY.

Ronald T. McDonald, president and general manager of the Fort Wayne Electric Company, Fort Wayne, Ind., died in Dallas, Tex., on December 24th.

William H. Lapham, who was for many years engaged in the manufacture of pig iron at Ashland, Ky., and Hanging Rock, O., died January 18th, aged 86 years.

Ignatz Franck, a California mine owner of some note, died at San Francisco on January 7th, aged 67 years. He was born in Germany and was largely interested in mines in Placer and other northern counties of California.

Daniel F. Coflin, a well known mine superintendent of Grass Valley, Cal., died on December 31st of paralysis. He was born in New York and located in Grass Valley in 1865. He was superintendent of the W. Y. O. D., Homewardbound and Electric mines.

SOCIETIES AND TECHNICAL SCHOOLS.

American Chemical Society, New York Section.—At the meeting on January 13th papers were read as follows: "Determination of the Bromine Absorption of Fats," P. C. McIlhiney; "Indicators," John Waddell; "Exhibition of Apparatus for Washing Precipitates," etc., W. D. Horne. The club will henceforth meet regularly at the rooms of the Chemists' Club, on West Fifty-fifth street.

American Society of Civil Engineers.—At the annual meeting in New York this week the Norman medal was awarded to B. F. Thomas for his paper on "Movable Dams," and the Thomas Fitch Rowland prize to Henry Goldmark for his paper on the "Power Plant, Pipe Line and Dam of the Pioneer Electric Power Company at Ogden, Utah." No award was made of the Collingwood junior prize.

The following officers were elected: President, Desmond Fitzgerald, of Boston; vice-presidents, Robert Moore, of St. Louis, and Robert Cortwright, of Rochester; treasurer, John Thomson, of New York; directors, John A. Bensel, C. W. Buckholz, and Samuel Whinery, of New York; Edmund K. Turner, of Boston; Palmer C. Ricketts, of Troy, N. Y., and James D. Schuyler, of Los Angeles, Cal.

Engineers' Club of Philadelphia.—At the meeting on January 7th 79 members and visitors were present. Messrs. J. A. Lafore, P. J. A. Maignen and George Tatnall were elected active members and Mr. J. B. Strong a junior member.

Mr. John Birkinbine presented the two papers of the evening, the first being upon the "Reconstruction of the York, Pa., Water Supply." In 1897, the construction of an entirely new system of water supply for the city of York was made necessary. Two miles above the city a new pumping station was built upon a branch of the Codorus Creek, containing two pumps of 5,000,000 gals. daily capacity with the necessary boilers, and a pumping main over two miles long was laid to the site of a pair of reservoirs designed for a combined capacity of 40,000,000 gals. Irregularities in the elevation of this main required the pumps to raise the water 42 ft. higher than the reservoir's full water level. The new reservoir then leaked badly. An examination of the work done resulted in a practical condemnation of what had been attempted and the work of reconstruction was undertaken by day labor late in September under the immediate supervision of Mr. Henry Birkinbine as resident engineer.

As it was evident that the entire western reservoir could not be repaired for service before severe weather, it was decided to divide it by a cross embankment and continue the work in the north part as long as the weather would permit. By employing a large force of laborers, this new embankment was constructed, the old ones in this portion were compacted, and the bottom and sides puddled with clay without any covering, so that at the end of 1897 water was admitted into this temporary section and the city was supplied from it for 10 months. Before the end of that time the work on the remaining portion of the western compartment was prosecuted, including the lengthening of this compartment and the shortening of the eastern one, in order to best utilize the excavation and embankments already made. The details and methods of making the necessary improvements were described by the author and illustrated by a large series of views.

At the conclusion of this paper, the subject of reservoir repairs was discussed by Messrs. L. Y. Schermerhorn, Joseph T. Richards, William Easby, Jr., James Christie and others.

Mr. Birkinbine's second paper consisted of a series of descriptive notes upon a new power improvement, proposing to utilize the fall of water in the gorge of the Niagara River by taking water from below the International Railroad Bridges into a canal running near the Niagara Falls & Lewiston Railroad on the American shore, and discharging it through turbines in a power-house near the Whirlpool outlet. The proposed details of this interesting plan were discussed by Messrs. James Christie and L. Y. Schermerhorn.

Franklin Institute.—Before the Chemical Section, on January 17th, Mr. Allen Hazen of New York presented a paper "On the Clarification of River Waters." Muddy waters result principally from the action of rain on loose soil, particularly soil which has been disturbed by plowing or cultivation. Muddy water follows heavy rains, and the duration of the muddy water at any point is as long as it takes the water to flow from the origin of the mud to the intake. The duration is thus longer for large streams than for small ones. In moderately small Pennsylvania streams generally more than half the turbidity is carried by the water flowing a tenth of the time. Mud can be removed to some extent by sedimentation, but the process is extremely slow. With small streams the most effective way to avoid large quantities of mud is by the use of storage reservoirs. With very large streams this procedure is not always possible.

Neither sedimentation nor storage is adequate to entirely remove turbidity from river waters. The process can be completed either by sand filtration or mechanical filtration. Mechanical filtration is much quicker, and the process is assisted by coagulants, which form a flocculent precipitate and allows the mud to be more readily removed. It is more difficult oftentimes to remove the finest clay particles than bacteria. Nearly all rivers used for public water supplies contain more or less sewage. In mechanical filtration, with the least turbid waters, quantities of coagulant sufficient for clarification are not sufficient to give even tolerably good bacterial efficiencies, and much larger quantities must be employed, increasing greatly the expense. With the least turbid waters, sand filters are cheaper and more efficient than mechanical filters; while mechanical filters are cheaper and more efficient in clarifying very muddy waters.

At the meeting of the Mining and Metallurgical Section of the Franklin Institute, on January 11th, the following officers were elected: President, Mr. James Christie; vice-presidents, Dr. D. K. Tuttle and Jos. Richards; secretary, G. H. Clamer.

A paper was read by Mr. A. W. Allen on the "Segregation of Steel Ingots." The segregation shown was quite remarkable and very much more than is generally supposed. Steel is looked upon as being a substance of comparative homogeneity, but the analyses of Mr. Allen go to prove that this is an erroneous idea. The paper was illustrated by many tables and a number of slides, showing the fracture of entire ingots. The fracture plainly showed the point of greatest segregation. Mr. Allen further showed that the causes producing segregation and those producing raised ingots seem to have some common relation.

Dr. H. M. Chance read a paper on the "Mogollon (New Mexico) Mining District." The ores are low grade gold and silver, the gold sometimes native and sometimes in a sulphide. The gangue rock is mostly quartz. The ore, in places, contained copper and other metals, which interfered with working by the cyanide process. Millions of dollars worth of ore is in sight, which

runs from $6 to $8 per ton, but does not pay when worked by any of the present methods. The future of the district depended, he said, upon some new and cheaper method if extracting. The paper was illustrated by a number of slides.

INDUSTRIAL NOTES.

The C. C. Chemical Company, of New York City, has been organized to manufacture explosives. Capital, $10,000. Directors: Stephen R. Branch and two others.

It is stated that parties interested in the International Air Power Company have made an offer for the entire property of the Corliss Steam Engine Company at Providence, R. I.

The Denver Engineering Works Company of Denver, Colo., has shipped one of its large timber framing plants to a prominent mine at Leadville and several large electric hoists to Cripple Creek.

The Mexican Mining Company, of Mapimi, Mexico, has given the Riter-Conley Manufacturing Company, of Pittsburg, Pa., an order for 3 large cyanide tanks. Each tank will be 116 ft. across and 12 ft. high, and built of ¼-in. steel plate.

The Erie Gas Engine Company, Erie, Pa., recently received an order from the McCoy Glass Company, Kane, Pa., for a 200 H. P. gas engine. Among other orders is one for a 100 H. P. gas engine for the Grand Driller Company, New Kensington, Pa.

The recently organized French company of the Westinghouse Electric and Manufacturing Company has been awarded the contract for the electrical equipment of the Paris Metropolitan Railway. The apparatus will be built at the company's works at Havre.

The Taylor Iron and Steel Company, of High Bridge, N. J., has received an order for all the steel castings required in the construction of 3 torpedo boats and 2 torpedo boat destroyers being built for the United States Government by the Wm. R. Trigg Company, of Richmond, Va.

The Eugene Dietzgen Company, of Chicago and New York, manufacturers and importers of drawing materials and surveying instruments, is putting on the market the "Vandyke Solar Paper," for which many advantages are claimed, and the "Rapid Printing" blue print paper.

The Cleveland, O., City Forge and Iron Company, which makes heavy forgings, has been considering the advisability of establishing a London office. It has finally decided to send Mr. Wallace, who has had charge of the New York office, to England and the continent as its foreign agent.

The Union Carbide Company is to erect an additional plant at Niagara Falls, with a daily capacity of 50 tons. The company is also erecting a new plant at Sault Ste. Marie, with a daily capacity of 100 tons. The present plant was begun by the old Chicago gas companies, but was taken over by the Union Carbide Company.

Following the example of the Cleveland-Cliffs Iron Company, at its Gladstone (Mich.) furnace the Ashland Iron and Steel Company will the present year erect a large by-product charcoal oven plant near the furnace at Ashland, Wis. The by-product system of the Gladstone furnace has been working to the utmost satisfaction, it is understood.

The Pittsburg Reduction Company, Pittsburg, Pa., has secured an order for 1,540,000 lbs. of sheet aluminum from Belgium. The company has awarded a contract to the Westinghouse Electric and Manufacturing Company for electrical apparatus for the Niagara Falls plant, the daily capacity of which will be from 20,000 lbs. of aluminum to 35,000 lbs.

Mr. M. J. Martinez has received the appointment as resident agent at Havana, Cuba, for the Hancock Inspirator Company, manufacturers of injectors, ejectors, general jet apparatus and specialties for steam, water, air and gas. The business will be conducted under the style of M. J. Martinez, consulting and contracting engineer. Mr. Martinez will be prepared to submit estimates on all the different lines of apparatus manufactured by the company.

The Pressed Steel Car Company has been incorporated under the laws of New Jersey with an authorized capital of $25,000,000, one-half preferred and one-half common, the preferred stock to bear 7% non-cumulative dividends. The company is empowered to manufacture passenger, freight and street railway cars. The incorporators are: Adrian H. Larkin, Arthur H. Vanbrunt and Francis L. Patton, Jr., of Jersey City, and the company is to use the patents controlled by the Schoen Pressed Steel Company, of Pittsburg, Pa.

The Cambria Steel Company, having leased the Cambria Iron Company's works, has consolidated its New York offices at the New Empire Building on Broadway, and has appointed Mr. H. L. Waterman its general sales agent for New York and vicinity.

At the annual meeting of the Cambria Iron Company at Philadelphia the old directors were re-elected. The net earnings for the year were $636,000, and after paying the April and October dividends, 2 per cent. each, there was carried to credit of profit and loss $307,407.

Additions to the plant of the Minnesota Iron and Steel Company of Minneapolis have been completed and fires have been lighted under the open-hearth furnaces. Besides bar iron and steel the output of the mills will be very largely agricultural iron and steel castings, etc., Minneapolis being one of the chief centers for agricultural machinery in the United States. Some 400 men will be employed in the enlarged works. There is a very large supply of scrap at Minneapolis, that being a railroad center for many lines of importance.

At the annual meeting of the stockholders of the Walker Company, at its office in Jersey City, N. J., the following board of directors was elected: Edwin S. Carpenter, W. A. Esselstyn, George W. Hebard, Ph. Ferd. Kobbe, Charles A. Terry, B. H. Warren and Wm. F. Zimmerman. The following officers have also been elected: B. H. Warren, president; Ph. Ferd. Kobbe, first vice-president; George W. Hebard, second vice-president; Edwin S. Carpenter, treasurer; Charles A. Terry, secretary and assistant treasurer; J. H. Jones, assistant secretary; James G. Bennett, auditor; F. P. Brown, assistant auditor and cashier.

The International Land and Exhibition Company has arranged for a permanent exhibition in New York of (A) agricultural articles, feed for animals and necessaries, forest products, agricultural machines, products of horticulture, beehives and beet industries of all kinds; (B) products of mechanics, mine industries, metallurgy, wheels, carriages, electricity and electrical apparatus; (C) general manufactures, liberal arts and inventions; (D) fine arts, pictures, sculpture, architecture, decoration; (E) lists and descriptions of land for sale in the United States for farm, horticultural, timber or mine purposes, etc. A moderate rental will be charged exhibitors, and it is claimed that they will be given the opportunity of meeting a large number of possible customers.

The International Air Power Company, of New Jersey, and the New York Auto-Truck Company have been incorporated under the laws of New Jersey. The capital of the former company is placed at $7,000,000 divided into 70,000 shares at $100 each. This will consist of $600,000 preferred stock and $6,400,000 common stock. The preferred stock will bear 3% cumulative interest, and will be issued only for cash. The common stock will be issued for property. The incorporators are: Robert I. McKinstry, Joseph H. Hoadley, William Knight, Harry E. Knight, New York, and Edw. F. Glenn, Philadelphia. The New York Auto-Truck Company will have a capital of $1,000,000, all common stock, to be $100 a share. The incorporators are Richard Croker, Nathan Strauss, Lewis Nixon, Arthur P. Gorman, Joseph H. Hoadley and Robert I. McKinstry. The companies are authorized to manufacture, buy, sell, and deal in compressed air, electrical machinery and apparatus, locomotives, engines, trucks and cars, and to manufacture all machinery for the supplying of electric, compressed air and other motive powers.

The National Carbon Company has been incorporated under the laws of New Jersey with $10,000,000 capital stock, of which $4,500,000 is preferred 7% stock, $5,500,000 common stock. The stockholders of the National Carbon Company, of Cleveland, O., have a large interest in the new concern. The companies bought for spot cash are the National Carbon Company, of Cleveland; the American Carbon Company, of Noblesville, Ind.; the Faraday Carbon Company, of Jeannette, Pa.; Crouse, Tremaine & Company, of Fostoria; the Washington Carbon Company, of Washington, Pa.; the Phoenix Carbon Company, of St. Louis; the Partridge Carbon Company, of Sandusky; the Solar Carbon Company, near Pittsburg; and the Globe Carbon Company, of Ravenna. Last year the National had an output of 120,000,000 carbons, and the other companies made enough to give a total of 200,000,000 carbons. The directors of the new company will be W. H. Lawrence, Col. Myron T. Herrick, James Parmelee, and Maj. Webb C. Hayes, all of Cleveland; J. C. Blarcom, of St. Louis; A. M. Young, of the Brooklyn Edison and New York Edison illuminating companies; J. M. Humbird, of the Washington Carbon Company; D. D. Dickey, of the Faraday Carbon Company; and Hugh H. Hammell, of Trenton, N. J.

TRADE CATALOGUES.

The We Fu Go Company, of Cincinnati, O., publishes a pamphlet giving copies of letters received from users of the We Fu Go Company's water softening and purifying plants. The apparatus is stated to remove lime, magnesia, iron, mud, and organic matter from water.

Electric locomotives especially designed for use about mines and smelteries are illustrated in Circular 15, published by the Jeffrey Manufacturing Company of Columbus, O. The locomotives are compactly built, ranging in size from 2 to 15 tons. Their general appearance and usefulness are clearly shown in numerous half-tone cuts.

The Magnolia Metal Company of New York issues an attractive circular describing the "magnolia" anti-friction metal it manufactures. The catalogue contains testimonials and detailed particulars of numerous competitive tests, showing the high standard claimed for "magnolia" metal by the manufacturers. Half-tone cuts show how the metal looks in bearings after long service.

"Nugent's Stationary Crank Pin Oiler" is described in a circular issued by Wm. W. Nugent & Company of Chicago, Ill., and prices are given of the various sizes carried in stock. The device is simple, the oil cup being kept upright by a pendulum, is easily applied, and its merits are shown by the testimonials published from some of the most prominent makers of high grade engines in this country.

Miners' safety lamps in great variety are fully described and illustrated in the large catalogue issued by Frieman & Wolf of Zwickau, Saxony. The catalogue is a complete manual of the care, use and construction of safety lamps. Such lamps are not only indispensable in fiery workings in coal mines, but can be used wherever explosive gases may accumulate, as in subways, cellars or storehouses. The catalogue contains descriptions of patterns especially adapted for particular uses, including very large lamps for stations, safety lanterns, lamps for surveyors (free from iron), and lamps for testing gas. A device for testing lanterns is also illustrated as well as devices for cleaning and filling lamps, and plans are given for the construction of lamp houses of approved design. The catalogue may be had of the Fidelity International Agency, Broadway, New York.

"Digging Machinery" is a handsome catalogue issued by the Hayward Company, of 96 Liberty street, New York. A special feature of the dredges and excavations made by this company is the "orange-peel" bucket, for which many special advantages are claimed; but other styles of bucket are furnished also. The pamphlet contains illustrations and descriptions of a variety of dredges and excavators for all sorts of work—harbor, river, canal excavation and the like. There are also land excavators and steam shovels, machinery for transferring coal and iron ore, derricks and other appliances. The catalogue is well printed and illustrated, and will be very useful to all who have dredging or excavating in charge, or who have to deal with large quantities of material. It will also be well worth the attention of those who purpose engaging in river-bed dredging for gold.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind and forward them catalogues and discounts of manufacturers in each line.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying and selling goods of any kind.

GENERAL MINING NEWS.

Oil Exports.—The Bureau of Statistics reports the exports of mineral oils from the United States in December as follows: Crude, 4,176,821 gals., against 10,400,768 gals. in 1897; naphthas, 1,556,190 gals. (1,231,970 gals.); illuminating, 50,096,378 gals. (71,786,378 gals.); lubricating and paraffin, 6,544,370 gals. (5,091,505 gals.); residuum, 3,496,290 gals. (2,277,282 gals.); total, 65,870,040 gals., against 90,791,903 gals. in December, 1897. The exports for the twelve months ending December 31st, 1898, were as follows: Crude, 114,915,082 gals., against 121,488,726 gals. in 1897; naphthas, 17,026,626 gals. (13,430,320 gals.); illuminating, 761,152,107 gals. (795,919,525 gals.); lubricating and paraffin, 63,968,341 gals. (51,228,284 gals.); residuum, 29,418,454 gals. (12,230,902 gals.); total, 986,480,610 gals., valued at $52,551,048, against 994,297,757 gals., valued at $59,057,547 in 1897, and 931,785,022 gals., valued at $62,764,278 in 1896. The

largest exports were made through the ports of New York and Philadelphia.

ALASKA.

Golofina Bay Gold Mining Company.—This company has been incorporated by Richmond, Va., parties to develop claims located by R. E. Franklin of Richmond, and George H. Griffith of Baltimore, on Golofina Bay, 65 miles north of St. Michaels, last summer. The officers of the company are: R. E. Franklin, president; George H. Griffith, of Baltimore, secretary and treasurer; the above and Messrs. Pleasant L. Reed, C. W. Saunders and William Gray, directors.

Unga Island.

Apollo Consolidated Mining Company.—At the annual meeting in San Francisco on January 9th the old directors were re-elected, as follows: G. Niebaum, W. L. Gerstle, Leon Sloss, W. W. Gollin and G. C. King. Gustav Niebaum was re-elected president, Walter W. Gollin vice-president, and Louis Sloss, Jr., secretary.

ARIZONA.

Pinal County.

Mammoth-Collins Gold Mines, Limited.—This company informs us that its 50-stamp mill is running steadily. A Bleichert wire rope tram 3 miles long connects the mine and mill. The Mammoth working shaft is down 700 ft., the ore now being mined coming from the 600-ft., where the pay ore is stated to be 52 ft. wide. Under former management the Mammoth produced 100,000 tons of an average assay value of $10.03 per ton. The Collins shaft is down 300 ft., and the ore body is stated to be 30 ft. wide. The company in the last quarter of 1898 produced 11,400 tons of ore, yielding $66,250 in bullion, and the earnings for the month of December are stated to be $11,250. The capital of the company is £100,000 in 1s. shares, the capital of the old Mammoth Company having been £500,000 in £1 shares. The mill is to be enlarged to bring its crushing capacity up to the carrying capacity of the tramway, or 10,000 tons monthly.

CALIFORNIA.

(From Our Special Correspondent.)

The California Mining Association will do all in its power to induce the American Institute of Mining Engineers to hold its annual meeting in San Francisco.

The rain, which still continues, reaching from one end of the State to the other, has restored confidence in financial circles on the coast and better business conditions will follow. Everybody feels greatly relieved at the outlook, particularly the miners, who will now be able to offer inducements to investors to advance funds to open up idle properties, and to equip mines generally. The prospects are very bright for the coming year, but we shall hardly feel the full effect for some time.

Calaveras County.

(From Our Special Correspondent.)

Alpine & Pajare Mines.—Messrs. Swank & Son have bonded these mines, 8 miles east of San Andreas, and will begin development work at once. Both claims are considered very promising. The Alpine has been opened up by 2 tunnels, the vein showing from 2 to 7 ft. wide.

Campo Seco.—At these copper mines, belonging to the Penn Chemical Works, of San Francisco, located 1½ miles northwest of Campo Seco, a new hoisting plant has been installed with a 44 H. P. engine and an electric pump. The shaft is being sunk to the 150-ft. level, and the property will be thoroughly developed. C. Borger is superintendent.

Empire Consolidated Mines—These mines, which comprise the Cleveland, Empire, Jumbo and Uno claims, now idle about 2 years on account of litigation, will be started up very soon under the management of an Oakland, Cal., company. Most work has been done on the Empire, which has been developed by several crosscut tunnels and winzes.

Utica Mining Company.—This company will probably install an electric plant at Murphy's for the uprpose of furnishing light and power for the Utica and the other mines in the vicinity.

Paragon.—At this mine, at West Point, an ore body about 12 ft. in width, yielding $10 per ton, is reported to have been encountered.

El Dorado County.

(From Our Special Correspondent.)

Argonaut.—At this mine, 1 mile east of Greenwood, Davis & Farmer report that a ledge of high grade ore has been uncovered. John Smith, of Greenwood, owns the property.

Summit Consolidated.—The property of this company, comprising the Stillwagon, Bull, Summit and Franklin claims, all adjoining, 3,000 ft. on the lode, and 1,200 ft. in width, located about 7 miles east of Fairplay, are being developed under the superintendency of W. H. Routledge. The development work consists of 3 tunnels, the upper being 180 ft., the middle 250 ft. and the lower 550 ft. The vein, which varies from 12 in. to 22 in., carries an average value of $40 per ton, besides the sulphurets, which run about 3%.

Mariposa County.

(From Our Special Correspondent.)

Brunswick Consolidated Gold Mining Company.—The December report shows 628 tons ore worked. The yield was 403 oz. gold, valued at $7,254, an average return of $11.55 to the ton.

Mary Harrison.—The work at this mine, 2 miles southeast of Coulterville, is to be resumed in a few days. The 40-stamp mill has already started up. The property is operated by the Merced Company.

San Bernardino County.

(From Our Special Correspondent.)

St. George.—This property, comprising the Gold Bar, Gold Bar Extension and Oro del Fino claims, is now owned and being developed by A. G. Campbell of Salt Lake. The shaft, down 175 ft., shows a 10-ft. vein of base ore, assaying from $20 to $40 per ton.

Sierra County.

(From Our Special Correspondent.)

Phoenix.—This mine, near Sierra City, is reported to have been sold to N. S. Keith of San Francisco for $14,000. The property has been idle for some years, although equipped with a fine milling, hoisting and electric plant. The intention of the new owner is to repair all the machinery and to let a contract to sink the 150-ft. incline 50 ft. deeper and crosscut.

Plumbago.—The new plant at this mine, 2½ miles south of Alleghany, is in running order. It will be driven by compressed air, while the mine and works wil be lighted by electricity.

Toulumne County.

(From Our Special Correspondent.)

Dreisam.—The Abner Dobel Company, of San Francisco, has secured the hydraulic equipment of this mine near Arrastraville. The plant consists of 5 wheels, a hoist, air compressor, rock breaker and blower, operating under 380-ft. head. The wheels are 4 and 6 ft. in diameter.

Jubilee Mining Company.—At the Hazel Dell claim, belonging to this company, located about 9 miles north of Soulsbyville, a 400-ft. crosscut tunnel has tapped three distinct veins, besides a 30-in. vein in the Purdy claim. W. B. Moore is superintendent.

Lucky Johnson.—This claim, near Summersville, on the North Fork of the Tuolumne River, owned by Hines & Johnson, although developed to a depth of only 40 ft., shows ore rich in sulphurets and free gold.

Philadelphia Diggings.—This hydraulic mine 10 miles northwest of Columbia, will be started up in a few days. The new ditch will cost over $25,000.

Republican.—Drifting both north and south on the 200-ft. is in progress. The main shaft is down 270 ft. and the ore at the bottom is looking well. The hoisting plant is large enough to sink to 1,000 ft. This property is located at Jacksonville.

Yuba County.

(From Our Special Correspondent.)

Victor Mining Company.—This company has been organized with a capital stock of $200,000. Directors: C. Webb Howard, M. B. Kellogg, J. M. Duke, Frank Pauson, Geo. Lazinsky, all of San Francisco. Property at Brown's Valley will be operated.

Trinity County.

(From Our Special Correspondent.)

Chloride.—The 5-stamp mill contracted for by the management of this mine is on the gound, and will be in position ready for work in a few days. The property is located on Canyon Creek.

Ridgeway.—The work at this mine, in the New River district, is progressing satisfactorily. A. J. Nelson, of Denny, is superintendent.

Squirrel Gulch.—This mine, northeast of Trinity Center, formerly owned by Maxwell & Collins, is now being developed by W. R. Thomasson, of Igo.

COLORADO.

El Paso County—Cripple Creek.

(From Our Special Correspondent.)

Colorado Electric Power Company.—At the annual meeting of the stockholders, at Colorado Springs, the following directors were elected: Horace G. Lunt, J. A. Hayes, J. R. McKinney, Walter Scott, D. V. Donaldson, John G. Holmes of Pittsburg and J. G. White of New York. The reports of the officers show the company to be in good financial condition. A number of electric hoists have been installed, as well as motors for other purposes. At a directors' meeting the following officers were elected: D. V. Donaldson, president and general manager; J. R. McKinney, vice-president; Walter Scott, secretary, and J. A. Hayes, treasurer.

Galena.—The Smith-Moffat syndicate has had its bond extended until July 1st. A tunnel has been run in 800 or 900 ft. and considerable drifting and upraising. Good reports come from the property, but no ore has been shipped. J. H. McDonald of Cripple Creek is in charge.

Gold Coin Mining and Leasing Company.—At the annual meeting in Victor, the following directors were elected: Warren Woods, president; F. M. Woods, secretary and treasurer, and John McConaghy, vice-president. The other directors elected were H. E. Woods and C. F. Rickey. The reports of the officers show the mine to be in excellent condition; 32,833 tons of ore, of the gross value of $1,051,149, were shipped during the year. Of the expenses, $313,000 for freight and treatment charges, and $130,000 for dividends. Cash in treasury, $336,000.

Independence Town and Mining Company.—At the annual meeting of the stockholders in Colorado Springs, the following directors were elected: W. S. Montgomery, J. F. Smith, W. A. Otis, A. D. Craigue and R. P. Davie. At a meeting of the directors, W. S. Montgomery was elected president and general manager, W. A. Otis, vice-president, James B. Gregg secretary and A. D. Craigue treasurer. The report of the president shows the company to be in good condition. Sixteen sets of lessees are still at work on the property. The company is sinking a 3-compartment shaft that is down over 400 ft. The company is also sinking on Blocks 1 and 13. Owing to the delay in getting new machinery, production will be considerably retarded for several months. The treasurer's report shows that for the year ending December 1st, 1898, $136,491 in royalties were paid to the company. Cash on hand on that date, $68,462. The production for the year was 12,022 tons of ore, of the gross value of $662,204; net, $516,011. The total production of the property up to December 1st, 1898, was 12,809.086 tons; gross value, $729,550; net, $561,506; royalties, $146,079. The company has no outstanding indebtedness.

Ingham Consolidated Gold Mining Company, Limited.—It is reported that the entire workings of this company have been leased to Montana parties, subject to the leases now in operation. The time is said to be for 1 year.

Isabella Gold Mining Company.—It is reported that some very rich ore has recently been uncovered. There seems to be very little doubt that the mine is doing better than some time ago.

Mt. Rosa Mining, Milling and Land Company.—At the annual meeting of the stockholders, in Colorado Springs, the following directors were elected for the ensuing year: Warren Woods, president; H. E. Woods, vice-president and general manager; F. H. Pettingell, secretary; C. F. Rickey, treasurer, and F. M. Woods. The report of the treasurer shows the following: Cash on hand at beginning of year, $15,318; receipts, $7,267; disbursements, $21,164. Cash on hand, $1,421.

Raven Gold Mining Company.—The annual meeting of the stockholders was held in Colorado Springs, and the following directors elected: E. M. De Le Vergne, M. F. Stark, Eben Smith, C. E. Noble and E. R. Stark. The reports of the officers showed the company to be in good shape and the outlook for '99 very favorable.

Fremont County.

Copper King Gold Mining Company.—This company, with $50,000 capital stock, has been incorporated to develop the Copper King claim near Canyon City, on which a find of rich gold ore caused a stampede a few weeks since. The directors are B. I. Dawson, J. B. Hannum and F. Dawson.

Gilpin County.

(From Our Special Correspondent.)

Calhoun.—A lift of 100 ft. has been sunk, making the shaft 980 ft. deep. C. Bliebel is manager.

Clifton Belle.—Chicago parties have resumed operations. The incline or skip shaft, now over 200 ft. deep, will be sunk 200 ft. deeper. Tramway connections were recently made to the mine.

Cook.—The shaft is 725 ft. deep and will be put down to 1,000 ft. as quickly as possible.

East Notaway.—Cundy & Company are working the west side of this property under lease, and are taking out smelting ore averaging from $60 to $200 per ton. G. W. Maher is agent.

Gower Mines Syndicate, Limited.—Francis G. White has been appointed agent of this English company with Black Hawk, Colo., as place of business, in place of J. H. Gower, previously located at Denver, Colo.

Hidden Treasure.—The Gold Coin Mines Company has finished 100 ft. of the 500 ft. to be sunk in this shaft, making it now 1,300 ft. A new and larger plant is to be put up. A. L. Collins is manager.

Kansas.—Clarissa Mead, of Brooklyn, has deeded for $1,000 to H. M. Teller and Hal Saye, 50 ft. of the Kansas lode.

Lotus.—A shipment of 300 tons of ore was made to the Newton mill at Idaho Springs this week, and steady shipments of smelting are being made. S. S. Johnson is manager.

Mining Deals.—Sarah R. Pierce of Boston has sold to the Patrician Mines Company for $4,450 an undivided ¼ interest in the Centre, Organ and Potomace claims in the Russell district.—C. F. Du Bois to A. M. Edwards a 1-3 interest in the Mammoth, Beaver and Banner lode claims

in Phoenix district.—C. A. Werdenhoff of Warren County, Idaho, to J. Gorman of Gilpin County, for $1,000, the September and Trio lode claims in Pine district.—A. Knight and W. C. Thompson of Denver to Warner Miller of New York for $1,400, the Lottie J. placer claim, Little Tootsie lode claim and Mamie M. tunnel site in Kansas district.—E. J. Adams to C. B. Howey of Beatrice, Neb., ½ interest in the Colorado Lode in Pine district. Joseph J. Gunnell of Buffalo, N. Y., manager, has deeded to the Buffalo Mining Company the C. P. W. Lode in Enterprise District. W. M. Blake, to C. E. Blake, an undivided ¼ interest in and to the Free Gold in Union District; consideration, $1,500. J. I. Seehorn, to M. D. Stillson, ½ interest in the Hidden Treasure claim, in Phoenix mining district. J. I. Seehorn to C. S. Parsons, ¼ interest in New Discovery Lode in Phoenix District. Annetta Company to J. A. Wider of Massachusetts, for $1,000, the Silver State claim in Gregory District.

Montgomery.—The Gilpin & Cripple Creek Mining Company has started sinking on a lift of 100 ft., which will make the shaft 415 ft. deep. A good body of smelting ore is opened up in the 315 west level, reports Manager Kelly.

Notaway.—The last smelting ore gave returns of $762 per ton.

Perigo.—The new mill at Perigo, belonging to that property, has started with 10 stamps, which will treat about 30 tons daily. A force of 25 men is at work, and A. L. Collins is looking after the interest of the Easterners.

Topeka.—A shipment of 5 tons of ore, running about $1,500 per ton, was made this week. The heavy mill product is to be hauled to Idaho Springs for treatment at the Newton mill. H. P. Lowe is manager.

Wain.—This property, in Chase Gulch, formerly operated by the Masonic Mining Company, is to start up again under a lease and bond.

Waincross Mining and Milling Company.—A certificate of paid up stock, showing the amount to be $30,000, has been filed. Charles F. Freund, as president, and H. H. Hall, W. H. Dayton, G. J. Paulsen and M. F. Montgomery as stockholders, constitute a majority of the board of stockholders.

Wood.—Poulot & Voilleque shipped 5 tons of uranium ore this week, expected to run about 40% uranium.

Lake County.

(From Our Special Correspondent.)

Ballard.—Shipments are continuous, and about $1,000 a day of ore are being mined. The expenses are quite heavy.

Downtown Mines.—The reports that there would not be sufficient funds on hand to complete pumping out the Downtown mines were promptly denied by the management, who states that the mines that are to pay their pro-rata have done so satisfactorily. The water isbeing lowered 3 ft. per day by the big pumps at the Bon Air and Penrose, assisted by the Northern and Starr. A break in the machinery at the Bohn caused a temporary cessation there. Six weeks more should see the work practically completed. The Northern will probably be the first to resume shipments.

Forest Queen Mining Company.—A. R. Meyer, of the Kansas City Smelting & Refining Company, is interested in this company, which has a lease on the Forest Queen on the very summit of Breece Hill. An old shaft is 625 ft. deep. At present several drifts from the 600-ft. level are being run.

Gordon.—This gold producer at Twin Lakes is involved in new litigation. The suit is brought by Constance H. Brown against H. D. McAllister, and involves a three-quarter interest in the property. Experts who were handling the sale above mentioned, testified that the Gordon is worth $200,000.

Gunnison Mining Company.—On the 14th a decision was rendered in the District Court dissolving the injunction secured last month by J. L. Smith. The Court decided that Manager A. H. Boyd was properly managing the mine, and refused to appoint a receiver.

New Monarch Mining Company.—Manager Goodwin expects to put the Monarch shaft into the sulphide workings this year, which means the sinking of the shaft from its present depth, 625 ft., a further distance of some 200 ft. At present the silicious ore body is being worked at the 600-ft. levels, and from 40 to 50 tons daily are being shipped. This stuff is a silicious lead ore, running up to 30% lead, about 6 to 15 oz. silver and as high as 1 oz. gold to the ton. The Monarch combination alone embraces 40 acres extending from Little Ellen to Breece Hill. The officers of the company for the ensuing year are J. C. Kortz, Cleveland, O., president; W. E. Brooks, Elyria, vice-president; W. A. Miles, Columbus, secretary; C. L. Thayer, treasurer, and T. L. Goodwin, general manager.

Niles—Augusta.—The lessees have been drifting and cross-cutting and have opened a big ore body. Five assays show silver 118 oz., 125 oz., 22 oz., 152 oz. and 480 oz. The stuff is an immense iron body which will average at least $40 to the ton.

Penn Mining Company.—Shipments have increased 50 or 60 tons daily, while the new stamps have been put in and the mill has started, handling an additional 50 to 75 tons per day.

Reindeer Mining Company.—The ore body has been opened up sufficiently to warrant shipments. Work is being pushed on the upper levels. The main ore body is strengthening.

Ouray County.

(From Our Special Correspondent.)

American Nettie.—The mine is shipping about 5 tons daily of high grade ore.

Bachelor Mining Company.—This is the richest silver producer now in Southern Colorado. The output is 6 carloads weekly and is shipped to Pueblo smelters.

Wedge.—This mine is located close to the Bachelor and on the same vein. Shipments average about 1 carload daily of high grade silver ore. About 100 men are employed. The shaft was sunk 300 ft. during last year to connect with the Khedive tunnel.

IDAHO.

Owyhee County.

De Lamar Mining Company.—The detailed report of Manager Huntley for November states that the regular stopes in the mine are holding out well, and some bunches of first-class ore have been found in the walls of old stopes. As an experiment the time of leaching at the mill was increased from 4 to 5 days, but the decreased loss in tailing was more than offset by the increased cost per ton, due to a smaller tonnage, and leaching for 4 days only was resumed.

The total amount of ore treated was 3,872 tons, assaying $12.60 per ton, the tailings assaying $3.48 per ton. The total income was $36,342, and the expenses $32,655, leaving a profit of $3,687.

Shoshone County.

Deadwood.—This group of mining claims, belonging to J. F. Ingalls, H. Wade and associates, adjoining the Morning at Mullan, has been bonded to J. P. Dailey of Comet, Mont., who has a company of reliable men interested. The consideration is put at $34,000.

Eclipse Consolidated Mining and Milling Company.—This company near Saltese has put in a hoist. C. H. Kenney, superintendent, reports 3½ ft. of ore in the bottom of the shaft.

Springfield Gold and Copper Mining Company.—This company has let a contract for 200-ft. tunnel.

KENTUCKY.

Crittenden County.

Fluorspar Company.—This St. Louis, Mo., company has about completed its new mill and warehouse buildings. Something over 3,000 tons of flour spar are reported on hand at the railroad track.

MAINE.

Washington County.

Electrolytic Marine Salts Company.—It is now stated that stockholders will receive 35 per cent. of their investment. Over 900,000 shares out of 964,000 shares issued have been deposited with the committee of trustees, of which J. O. Burdette of Boston is chairman.

MICHIGAN.

Copper.

Onondaga.—This company, with the usual capital, is being formed to reopen the old Sheldon and Columbia mines at Houghton.

Pawnee Copper Company.—This company's property comprises 21,000 acres of land 5 miles east of the Central in Keweenaw County, which formerly belonged to the Conglomerate Mining Company, that built a mill early in the 80s. and 7½ miles of railroad. The new company, which has 100,000 shares, par value $25, intends to explore other lodes which cross the property, besides the Allouez Conglomerate. Capt. Palmer, formerly of the Boston & Montana, is to be president.

Victoria Copper Mining Company.—This company has been organized at Boston to develop lands belonging to the Saint Mary's Mineral Land Company. The directors are: Thomas B. Dunstan of Hancock, Mich., president; Calvin Austin of Boston, vice-president; William F. Humphrey of Boston, Fred H. Williams of Boston, Fred H. Begole of Marquette, Mich. James P. Graves of Boston will be secretary and treasurer.

The Victoria is to reopen 2 long abandoned mines in Ontonagon County, the Victoria and Forest.

MINNESOTA.

(From Our Special Correspondent.)

There is great regret in the lake region at what seems to be the final failure of efforts on the part of non-Bessemer mines to get together. There has not been any money in non-Bessemer mines the past year, and they cannot work if charges are higher. The question of railroad tonnage has been the difficulty in negotiations, those mining companies interested in roads desiring to get tonnage whether they made anything from mining or not, and being willing that the prices of ores should be lower than outside miners could afford to meet.

The rate on ore for next summer has been settled at 60c., the season rate last year, and in the past week it is understood that contracts have been made for the moving of not less than 6,000,000 tons. This includes all the Carnegie and Oliver ore, over 3,000,000 tons, about half of which has been taken by the Bessemer Company, In this case it is very evident that the big boats in the lake trade have fixed the rate, for 60c. is a figure at which small ships cannot make a living, and the small fry must wait a bit and try for a better figure either on contract or wild rates. In this they are not likely to be disappointed. Never in the lake trade have contracts for the season of navigation been placed in quantity so early in the year.

Iron—Mesabi Range.

(From Our Special Correspondent.)

Commodore Mining Company.—Difficulties between the fee owner, W. H. Yawkey of Detroit, and the mining company have been settled by the withdrawal of suits. A new lease has been made out and operations are expected to resume with the return of Capt. Pearce from Cleveland, where he is in conference with Corrigan, McKinney & Company.

Genoa Iron Company.—At this mine of the Minnesota Iron Company, No. 2 shaft will be sunk to a depth of 200 ft., equipped with 3-ton skips and 6-ft. drums. All the ore taken out heretofore, last year 277,000 tons, has been through one shaft, 160 ft. deep, and 5 by 18 ft. The mine is worked by the top-slicing and caving method, and some 250 men are now at work, while perhaps 100 more could find employment before spring. The location is remarkably well kept, like all Minnesota Iron Company properties.

McEwen.—At this property, adjoining Franklin ground, 4 pits are being sunk, one of which is already 50 ft. down. Ore has been encountered and indications are favorable.

Sparta Iron Company.—At this mine, which has been idle since the close of navigation, work in the surface will start soon and considerable ground will be removed before navigation. The mine will ship from 300,000 tons upward this year.

Iron—Vermilion Range.

(From Our Special Correspondent.)

Chandler Iron Company.—This company is hoisting about 3,500 tons daily, and has nearly 300,000 tons in stock, including what was left over from last season's shipments.

Oliver Iron Mining Company.—At the Pioneer 400 men are at work, and over 1,000 tons of ore are hoisted daily. This amount will be increased as development work progresses, and there will probably be 150,000 tons on stock at the opening of navigation. B shaft is to be used for timber, and work on the new mining shaft begins very soon. At the Savoy location numerous buildings are under way, and more are soon to start. Ely is having a building boom, and bids fair to be the most important mining town of Minnesota. Savoy and Zenith underground are very busy with development work.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—A steady drizzle with occasional sharp showers has made the roads a mass of sticky paste over which, in some localities, it was almost impossible to haul even an empty wagon. A large amount of ore remains in the bins to be hauled this week. There is little, if any, surplus ore unsold. The output ore from the Eagle mines at Belleville sold for $32 per ton, also Pleasant Valley ore at Carthage, the top for the balance of the district was $31 per ton. Lead ore advanced again, selling at $24 per 1,000 lbs. J. W. Aylor on the Eleventh Hour lease at Carterville, has been holding over 1,000,000 lbs. for $25. As compared with the second week of 1898, the zinc ore sales show an increase of 2,058,440 lbs., but the lead ore sales are less 477,480 lbs., the values was greater by $57,819. For the first two weeks of last year, the zinc ore sales were less by 4,162,610 lbs., but the lead ore sales were greater by 816,210 lbs., the value of the ores being less by $101,681. As compared with last week, the zinc ore shipment showed an increase of 517,130 lbs., but lead ore fell off 30,330 lbs. The value was greater by $16,024. Following are the lead and zinc ore sales from the different camps in the district for the week ending January 14: Joplin, zinc, 1,825,600 lbs.; lead, 259,450 lbs.; value, $32,611. Carterville, zinc, 1,025,820 lbs., lead, 159,090 lbs.; value, $18,896. Webb City, zinc, 450,880 lbs.; lead, 42,620 lbs.; value, $7,632. Oronogo, zinc, 1,091,550 lbs.; lead, 10,220 lbs.; value, $16,680. Duenweg, zinc, 657,090 lbs.; lead, 108,900 lbs.; value, $11,810. Central City, zinc, 565,830 lbs.; lead, 22,100 lbs.; value, $8,736. Stotts City, zinc, 361,440

lbs.; value, $5,530. Aurora, zinc, 1,605,000 lbs.; lead, 25,000 lbs.; value, $19,744. Galena, zinc, 2,464,170 lbs.; lead, 248,460 lbs.; value, $41,077. Belleville zinc, 86,190 lbs.; value, $2,886. Lehigh, zinc, 68,960 lbs.; value, $1,058. Hell's Neck, zinc, 108,630 lbs.; value, $1,629. Carthage, zinc, 79,000 lbs.; value, $1,225. Alba zinc, 43,200 lbs.; value, $650. District totals for the past week: Zinc, 10,541,650 lbs.; lead, 883,800 lbs.; value, $170,971. District totals for 2 weeks: Zinc, 20,566,170 lbs.; lead, 1,997,910 lbs.; value, $325,918.

Kane, Daugherty, Ruddy & Company.—These parties made a big strike of rich ore on their forty-acre lease of the Campbell land at Hell's Neck. They have a shaft down in good ore over a drill hole to a depth of 125 ft.

Randolph Finke.—William Johnson of Joplin is building a new concentrating plant on the Free Coinage lease at Midway, to cost $4,000. He has a 10-acre lease, with 3 shafts, all of which have a big run at 180 ft.

Sheldon Mining Company.—On the Empire Zinc Company's land, this company is building a 100-ton concentrating plant. Power will be furnished by a 100 H. P. boiler and 60 H. P. engine. It will put in a 16-in. crusher, 3 sets of rolls with 5 and 6 cell steam jigs. It is owned by F. P. Anderson and S. A. Wright, of Nevada, Mo., and J. Dermott, of Webb City.

Spencer & Wright.—This Columbus, Kan., firm is having a 75-ton steam plant built on its lease south of Jackson Station.

St. Clair Mining Company.—This firm, composed of Detroit, Mich., people, is building a steam concentrating plant on its 4 lots on the Empire Zinc Company's land, northwest of the smelter. The new plant will have the capacity of 100 tons of rough ore per shift.

MONTANA.

Broadwater County.

(From Our Special Correspondent.)

Conroy Placer.—The dredging operations the past season were sufficient to prove the value of the ground, and also the economic features of the dredge equipment, the company being highly pleased.

Daphne.—This claim, near Corbin, on which the ore carries from 7% to 20% copper, with a fair value in gold and silver, has been bonded to Eastern copper men. Machinery to explore the mine to the depth of 500 ft. is to be placed thereon.

Gray Eagle.—Holmes & Dahlman are shipping about 5 cars a week from this mine. The lower tunnel has reached the ore body, and shipments are being made through it.

Gregory.—A steam jigging plant is to be built to rework the tailings from the old mill. It is estimated that the tailings will return a value of $65,000 net.

H. & H.—This Winston property, belonging to Chas. Clark of St. Louis, has been given over to tributers, who are paying a royalty on the ore of from 30% to 50%. The ore is principally gold, which must be smelted.

January.—Situated in Weasel Gulch and owned by J. N. S. Neill of Helena, this mine, operated by a St. Paul syndicate, represented by Mr. Sloan of St. Paul, has begun shipments. It is said that sufficient ore is blocked out above the tunnel to pay the bond.

Revenue.—This property, principally owned by Sam. Newhouse of Salt Lake and associates, is enlarging the cyanide mill. Under the management of Lawrence Harris it has been a steady money maker for the past 5 years.

Deer Lodge County.

(From Our Special Correspondent.)

Mammoth Gold Mining Company.—This property, Coloma, in the northern part of the county, was sold at Sheriff's sale on December 31st, and bid in by Larabie Brothers, the judgment creditors. The old company, a Massachusetts concern, is said, intend to reorganize and pay up the claims under its right of redemption.

Nancy Hanks.—This Garnet mine owned by Sam. Ritchie, has produced $60,000 during the past 12 months. The ore carries a good per cent. of copper with some gold and silver and is shipped to the Butte smelters.

Granite County.

Granite-Bi-Metallic.—At this company's mill at Phillipsburg 80 stamps are dropping. It is rumored that work is to be resumed in the Granite Mine.

Jefferson County.

(From Our Special Correspondent.)

Belle.—This Wix property has been taken by Domally & Morland under lease and bond for $10,000. They will equip the property with a steam hoist and sink 200 ft. below the lower tunnel level.

Bum.—Sinking has been resumed. There is 14 inches of shipping ore in the bottom of the shaft which will net $35 per ton.

H. P.—This claim north of Sheep Mountain has been purchased by the Hamilton Mining Company, which has built a 20-stamp mill on Indian Creek. The ore is free milling.

Legal Tender.—This Clancy property, belonging to the First National Bank, of Helena, has been leased to Goobe & Duthie on a royalty of 20%.

Little Emma.—This property known as the Old Kennedy, and now owned by Thomas Cruse, is producing some high-grade silver ore by tributers.

Little Nell.—At this Lump Gulch property, Swan & Company are shipping ore from a lease on the east working, while Timothy Wilcox is jigging the dump, his concentrates averaging $150 per ton, net.

Pilot.—This property under bond to the Fremont Gold Mining Company, composed of officials of the Northern Pacific Railway, has a shaft caved so badly that a new one will be sunk.

Lewis & Clarke County.

Montana Mining Company.—The cabled report for December states that the total output for the month was 2,030 oz. gold and 5,870 oz. silver from 7,275 tons of ore crushed. The estimated return is $44,000; the expenses amounted to $38,700, leaving a net profit of $5,400.

Missoula County.

(From Our Special Correspondent.)

Missoula Coal Company.—A company has lately been incorporated with capital stock of $100,000 for purposes of purchasing, leasing and developing the coal measures near Missoula, where much lignite has been found. The Northern Pacific Railroad Company has for a long time been looking into the matter, but has never divulged its findings. G. Marotz, D. H. Ross and J. M. Dixon are the owners of the stock and have let contracts for a shaft of 100 ft. depth. The work is felt to be very important.

Ravalli County.

(From Our Special Correspondent.)

Coal Creek.—Geo. Ward, representing the four owners of the coal prospects on this creek, has run a tunnel and found a width of 10 ft. of coal.

Victor Mining Company.—H. P. Kennett, receiver of the Curlew Extension, has lately renewed the lease which he held and will go on with his development. The ore is so irregular in its occurrence in pockets that so far it has only paid expenses of working.

White Cloud Mining Company.—Contrary to all rumors, work has again commenced on this mine, principally in the way of building an entirely new shaft. The old shaft caved in last spring justprevious to the closing down. New York parties are furnishing the money.

Woods Placer Mining Company.—The final clean-up for the season on December 1st brought the total output up to $6,000, which, considering the small scale of operations and other disadvantages, is thought a good showing.

NEVADA.

Elko County.

(From Our Special Correspondent.)

Owyhee Gold Mining Company. — A Utah company, whose incorporation articles were filed with the Secretary of State, at Salt Lake City, on December 24th. Capitalization, $20,000, in 10c. shares, with 75,000 shares set aside for treasury purposes. Principal office at Salt Lake City; annual meeting second Tuesday in January. Officers and directors are: Hiram E. Both, president; E. C. Lee, secretary-treasurer; Edward E. Jenkins, all of Salt Lake City; Frank W. Ish, vice-president; Peter A. McKenzie, both of Tuscarora. Realty consists of Last Chance placer, 41 acres; Utah placer, 80 acres, and a bond on Then All Others placer, 40 acres, all situate in Tuscarora Mining District.

Storey County—Comstock Lode.

Comstock Pumping Association.—The association has stripped the pump compartments of the C & C shaft of small hydraulic old air pipe and old rope. The Pelton wheels and shafting have been left on the surface and in underground stations. The pressure pipe has been left in the shaft. The pump bob has been removed from the 1,750 level station and the pump compartment stripped of columns, rods and connections to the water level. As the 1,750 ft. level station will be the working station for the new pump extensive repairs are being made.

The pipe for the new pumping plant made by the American Tube Company of Middletown, Pa., is of steel, 12 in. diameter inside, in 21½ ft. lengths, each length weighing 1,400 lbs.

NEW MEXICO.

Grant County.

Confidence.—This mine, in Mogollon District, is producing 80 tons daily, which is handled by the mill.

Othello & Desdemona.—The output of these mines at Crook's, owned by the Kansas City Smelting and Refining Company, from 400 to 600 tons monthly, is shipped to the El Paso smelter. About 125 men are employed.

Texas.—The mill at Central is running steadily on ore from the mine.

NORTH CAROLINA.

Davidson County.

(From Our Special Correspondent.)

Silver Hill.—This old silver mine is being opened up by the West Prussian Mining Company, under the management of Mr. Edward Hopkins. It has found some rich silver lead ore, which is being shipped.

Montgomery County.

(From Our Special Correspondent.)

Beaver Dam.—This gold mine is about to resume work under Captain Overton, a Western mining man. He is hauling in supplies to Flagtown, near the mine.

Uwharrie River Gold Mining and Dredging Company.—This Pueblo, Colo., company is building a Bucyrus dredge on the Uwharrie River to dredge for gold. There is no doubt as to the existence of gold, as the river drains a large portion of rich mining country, but the difficulties of obtaining gold in swift water with a slate bottom are many. Mr. Wesley Davis, of Worcester, Mass., is manager. He is located at Maratock.

Rowan County.

(From Our Special Correspondent.)

Gold Hill Mines.—It may be interesting to note that this mining company, which is a London, England, association, has been threatened with a law suit by an Englishman sent out to take charge of the property some years ago.

Rimer.—This gold mine has been unwatered and inspected by Western capitalists. It is equipped with a 20-stamp mill, plates, concentrators, and chlorination plant, which are all in good order, and will be put into operation provided the inspection proves satisfactory.

PENNSYLVANIA.

Anthracite Coal.

C. Pardee & Company.—Work has been resumed at Lattimer Breaker No. 1. At Harwood Colliery a 12,000 H. P. plant is being installed.

Cross Creek Coal Company.—This company is reported to intend to supply the Oneida collieries with air motors to transport coal to the bottom of the slope. This will do away with about 40 mules.

Hazleton-Lehigh Coal and Land Company.—This company has begun a slope on its new property near Hazleton to tap a basin 300 ft. wide and 1¾ miles long. The seam is said to average 10 ft. thick.

Hollister & Bowman.—Over 3,000,000 gals. of water, the contents of the reservoir of the Brookside Coal Company, near Avoca, ran into the workings of this colliery on January 15th. Hollister & Bowman's workings were under the reservoir, the miners robbed the pillars, and the bottom dropped out of the reservoir. The washer supplied by the reservoir and the flooded workings are idle. No lives were lost, as the miners were not at work when the accident occurred.

Jermyn & Company vs. Elliott McClure & Company.—This suit grew out of a parole exchange of coal lands in Old Forge Township. The land in dispute is valued at $100,000. Judge Archibald recently gave a decision at Scranton sustaining the defendants' contention that there had been an exchange. The case was appealed to the Supreme Court.

Lehigh Valley Coal Company.—The company is to continue operations at York Farm Colliery, at Pottsville, during this month. About 400 hands are employed.

Mt. Carmel.—Improvements are to be made at this Pottsville colliery, especially at the breaker, to conform to the larger cars being constructed by the Reading and Baltimore & Ohio railroads.

Scranton Coal Company.—This company, with Joseph B. Dickson, Jesse L. Eddy, William F. Dunning, Frank E. Platt, Thomas F. Wells, Orlando S. Johnson and James E. Burr, as incorporators, is to work the coal properties recently purchased from the Lackawanna Iron and Steel Company for the New York, Ontario & Western Railroad.

Chester County.

Philadelphia Graphite Company.—The company states that its mine at Chester Springs is producing about 20 tons weekly. The deposit worked averages about 50% pure graphite, sometimes running as high as 90%. Numerous changes have been made in the mill to reduce the cost of preparing the graphite, while exploration work underground shows a large amount in sight. The officers are E. H. James, president; Wm. Faux, vice-president; E. W. Insheep, secretary and treasurer; F. C. Husbands, manager; H. E. James, assistant manager. The principal office is in Philadelphia.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Lizzie.—The new hoisting plant is completed and mining will begin soon. The machinery is all in place in the old axle grease building ready to give the new milling process a trial. Ore is being hauled from the mines for the purpose.

Lawrence County.

(From Our Special Correspondent.)

Dakota Gold and Copper Company.—Capital stock, $300,000. Incorporators: Henry Schenck, S. E. Young, Clarence L. Lewis, John F. Schrader and W. L. Gardner of Rapid City.

Deadwood & Delaware. — The two sinking pumps, combined capacity 1,600 gals. a minute, have been placed in the Delaware shaft in Ruby basin at the 200-ft. level. This shaft drains the entire basin and the volume of water is enormous. A 1,250 gal. Prescott pump will be put in at the 600-ft. level.

Durango.—The 175-ft. tunnel run to strike the lower level has been completed and mining has been resumed. The mine is in the North Lead district, and is owned by Lieutenant Cusick and associates. There are 3 separate shoots of ore.

Gilt Edge.—This mine is shipping 75 tons of ore per day. Twenty-eight 4-horse teams are required to haul the ore. Most of it goes to the new clorination plant at Rapid City.

Gold Edge Mining Company.—W. E. Rothermel and associates of Chicago have formed this company to work 5 claims north of the Gilt Edge and Union Hill properties in Strawberry Gulch. The company was organized by C. E. McHugh, one of the lessees of the Dakota Maid property. Three separate ore shoots have been found on the claims. A shaft is being sunk.

Gunnison.—Ore is being shipped from this mine at Portland that was recently purchased by a Minneapolis company which has plans made for a smelter at Belle Fourche.

McHugh Gold Mining Company.—Capital stock, $7,500; headquarters Deadwood. Incorporators: Edward N. Brown and George McCracken, Chicago.

Pennington County.

(From Our Special Correspondent.)

Crown Hill Company.—Work on the Crown Hill at Crown Hill, near Ragged Top, has shut down for the present. The work is concentrated at the Spokane, near Rockerville. This is a galena proposition carrying lead and silver at the 150-ft. level. A new hoisting plant is being erected and the company has leased the old Glendale tin mill to concentrate the ore. It is concentrated 6 into 1 and shipped to the smelter at Aurora, Ill. It is the intention of the company to erect a smelter at this mine to treat the low grade ore from Crown Hill. S. E. Young, of Rapid City, is general superintendent.

Hayward Group.—W. H. Smith, of Keystone, has bonded 80% of the stock of the company owning this property near Hayward. A good sized ore body contains silver, lead, gold and some copper. A steam hoist pump will be put in.

King of the West.—The good grade of ore still holds out in this mine in Hornblende camp, recently bonded and leased to Carl Blank and H. Donnell, of Deadwood. The Montezuma mill is running steadily on 40 tons of ore daily. Good cleanups are made.

Uncle Sam.—Machinery has been ordered for repairs on the old mill in Elk Creek, and the new company has begun sinking a new shaft farther south. The water is being pumped out of the old workings preparatory to mining ore.

UTAH.

(From Our Special Correspondent.)

Bullion and Ore Shipments.—During the week ending January 14th the bullion and smelter products forwarded east from the different smelteries and camps of the State were: 24 cars, or 1,044,203 lbs., lead-silver bullion; 1 car, or 40,882 lbs., copper bullion; 59 cars, or 2,776,490 lbs., lead-silver ore.

Ore Tonnage and the 1899 Freight Tariff.—As was predicted last month, when the 1899 schedule on bullion and ore rates was made known, there is a falling off in the production of several of the low-grade lead-silver mines, and a number of the large shippers refuse to make treatment contracts according to the new basis. This is particularly noticeable at Bingham, where the largest and most reliable producer—the Old Jordan—has stopped shipping altogether. Some of the Tintic mines are sending smaller shipments than they would were the old rates in force. Local smlters are feeling the effect, and their ore supplies are dwindling; in fact, unless a change occurs very soon 2 or 3 stacks will be closed down.

Juab County.

(From Our Special Correspondent.)

Tintic Shipments.—For the week ending January 14th the consignments of dore bullion and smelter products forwarded from the 3 shipping points of the district were 4 bars of bullion and 71 cars of ore. The ore shipments came from the following properties: Bullion Beck, 20 cars; Grand Central, 16 cars; Centennial Eureka, Humbug and Godiva, each 5 cars; Eureka Hill, 3 cars; Gemini, 2 cars; Mammoth, 2 cars; Joe Bowers, 1 car; Swansea, 1 car, and Dragon Iron, 6 cars of hematite for flux.

Salt Lake County.

(From Our Special Correspondent.)

Utah Consolidated Mines, Limited.—At the meeting in London on January 4th, the chairman of the company, J. E. Dudley Ryder, described the amount of work already done on the Highland Boy property and stated that the new smelter will be at work about June 1st, 1899, with a capacity of 200 tons daily. The works will have 4 calciners, 3 reverberatory furnaces and 1 converter. On December 1st, 1898, the total number of feet of tunnels, crosscuts, winzes and so forth amounted to 9,800, showing practically 7,400 ft. of development work done since the company took possession. The No. 4—the first level which encountered the copper sulphide bodies—has been driven 1,620 ft., and at the breast is approximately 900 ft. vertically below the apex. Fully 1,000 ft. is along the strike of the lode, which has been crosscut about every 100 ft., and at places is over 100 ft. thick; while in No. 5 tunnel, 64 ft. below, the greatest width shown is about 95 ft.; in the No. 6, 108 ft. below No. 5, the ore body shows 180 ft. thick. From the breast of present tunnel No. 4 it is 3,000 ft. to the limit of the company's territory; about 2,200 ft. below the surface. The railroad station, about 2½ miles distant, is some 1,100 ft. below the mouth of tunnel No. 6. The sulphide ore is principally a sulphide of iron and copper carrying gold and silver. The total number of tons shipped to the Germania smelter amounted to 4,174, and the statement received gave the result of 12.09% copper, 2.78 oz. silver and gold $4.22 per ton. In the ore bins at the mine are about 1,000 tons, which assay about 9% copper, 2.25 oz. silver and $2.50 in gold, and 6,000 tons in dumps of No. 4, No. 5 and No. 6 tunnels, which assay about 5% copper, 2 oz. silver and $2.20 in gold. A general average of the sulphide ore developed is 8% copper, 2.3 oz. silver and $3 in gold. The mill will probably be changed for concentration of the low-grade sulphide ores. The company owns about 3,500 ft. along the vein west of present workings. Although the capacity of the smelter is stated as 200 tons per day, arrangements have already been concluded by which this capacity can be largely augmented at trifling cost. The ore shows an entire absence of arsenic or zinc.

Bingham Copper and Gold Mining Company.—Articles of incorporation were filed with the Secretary of State at Salt Lake City on January 9th. It is a New Jersey corporation, with principal office at 83 Montgomery street, Jersey City. Capitalization, $2,000,000; shares, $10. Incorporators are J. A. Coram, of Lowell, Mass.; Orington E. Weller, of Boston; Henry H. Royce, of Crawford, N. J. Colonel H. G. Heffron is the Utah agent and manager. The property joins the Old Jordan and the Boston Consolidated. A pyritic copper ore body is exposed.

Summit County.

(From Our Special Correspondent.)

Park City Shipments.—In the week ending January 14th the ore and concentrate products sent forward through the Mackintosh sampler made a total of 1,685,980 lbs., and were from the following properties: Silver King, crude, 1,069,160 lbs.; Anchor, concentrates, 414,820 lbs.; Ontario, crude, 202,000 lbs.

WASHINGTON.

Stevens County—Republic Camp.

(From Our Special Correspondent.)

It is proposed to divide Stevens County, forming a new county, to be called Eureka, embracing all of the territory bounded by the British Columbia and Washington boundary, the east boundary of Okanogan County and the Columbia and Kettle rivers. In case of the division Republic would be made the county seat. This might bring a railroad into the camp from Wilbur, on the Washington Central Railroad, following up the Sans Poil River.

Admiral Dewey.—This claim lies a mile south of Copper Mountain and has a big ledge, which is being crosscut to find a pay shoot.

Ben Hur.—The drift running south on the vein has been entirely in quartz for the last 30 ft., and the pay ore has gradually become wider and richer. Eleven samples along the 30-ft. have assayed from 84c. to $10.44 in silver and from $6.26 to $42.09 in gold. The total average was $28.74 per ton. Development shows the ledge 15 ft. wide. An open cut at the north end of the claim is 14 ft. long without showing the footwall; this on a pay shoot 300 ft. long.

Black Tail.—A crosscut is under way southward from 80 ft. above the tunnel, to terminate under an ore shoot found in discovery shaft. It will be 125 ft. below surface.

Caliph.—This claim carries 600 ft. of the Morning Glory ledge, and a company has been incorporated to develop it. Workmen are putting up buildings.

Gold Leaf.—The tunnel is in 120 ft., and quartz shows in bunches at the breast.

Golden Lilly.—Open cuts show some good-looking quartz, with values very low. A tunnel is being run to cut the vein.

Iron Monitor.—The tunnel is in 225 ft., with stringers of quartz coming in at the breast.

Mary Ann.—The shaft is down 24 ft., with the bottom in quartz heavily charged with iron sulphides.

Morning Glory.—A tunnel has started on the vein. It will strike 80 ft. below the top of the main shaft.

Munroe.—The tunnel is in 23 ft. and gaining 3 ft. a day.

Princess Maud.—The tunnel is in 325 ft., with only 55 ft. to run to get under the pay shoot at the bottom of the main shaft, where it will have 227 ft. of backs.

Quilp.—A shaft is down 38 ft. on the hanging wall of what is supposed to be a continuation of the Surprise vein. By stripping at the surface another ledge has been uncovered. No values are reported.

Republic Gold Mining and Milling Company.—An additional Fraser & Chalmers ball pulverizer and an 80 H. P. boiler have been received and will be installed when weather permits.

San Poil.—The quartz in the 85-ft. north drift runs 5 ft. to 7 ft. wide near the breast. It is unusually hard. Values are not as high as usual. The south drift is in 128 ft. A raise has been started for No. 1 level.

Standard.—This lies east of the Rebate and south of the Tom Thumb. A shaft at 20 ft. deep had cut into a quartz ledge 2 ft. The same ledge is uncovered in an open cut south of the shaft a short distance, and there it is 5 ft. wide.

Stray Horse.—This claim has a good showing of low-grade quartz and is to be opened immediately.

Tom Thumb.—The east shaft has passed through a 4-ft. vein of quartz assaying $12 per ton at a depth of 88 ft., and is down altogether 11 ft. It is expected to strike the main vein 12 ft. deeper. There appears to be 2 veins on this property at the surface.

WEST VIRGINIA.

Fayette County.

(From Our Special Correspondent.)

Capetown Coal Company.—This company, at Southside, on New River, is to put in an electrical plant to be completed by February 15th. The plant consists of a 100 K. W. generator, 165 H. P. Union Iron Works boiler, and a 150 H. P. Skinner engine. The company intends to try a new undercutting augur machine invented by Capt. J. C. Beury.

Chesapeake Mining Company.—This company, near Handley, has put in 2 new chain coal cutters.

Slater Coal Company.—This company, at Slaters, on New River, has put in an electric plant consisting of a 75 K. W. generator, 125 H. P. Union Iron Works boiler, 125 H. P. Skinner engine and two low vein coal cutters. More cutters will probably be installed soon.

FOREIGN MINING NEWS.

ASIA.

India—Mysore.

Colar Gold Field.—The total gold production for December is reported at 34,980 crude oz. This makes the production 415,021 crude oz. for the year 1898, against 389,779 oz. in 1897, and 321,880 oz. in 1896.

AUSTRALASIA.

Western Australia.

Gold output for December is reported at 95,316 crude oz. This makes a total for 1898 of 1,050,179 crude oz., against 674,988 oz. in 1897 and 281,263 oz. in 1896.

CANADA.

British Columbia—Texada Island.

Van Anda Copper and Gold Company.—This company, we are informed by Mr. H. W. Treat, was incorporated about 3 years ago to operate 18 claims, of which only 4 have yielded ore suitable for shipping. There are about 60 men on the property. The property covers 776 acres, and the ore that has been shipped (about 400 tons) is said to have averaged about 15% copper, $10 in gold and $1 or $2 in silver. This ore was selected and came from the Cornell, Copper Queen, Little Billie and Florence claims, and was sent to Vivian & Sons, Swansea, Wales. The cost of transporting the ore from the mines to Vancouver was 75c. per ton, and from Vancouver to Swansea $1.50 per ton. The best of the four properties is the Cornell. There are on the dumps about 5,000 tons of rather low grade ore. There are two shafts, one following the vein down 130 ft., and the other a vertical double

compartment shaft 250 ft. deep. Drifts have been run 140 ft. on the 100 ft. level and 100 ft. on the 200 ft. level. A 6-drill plant is being put in. The officers of the company are Edward Blewett, president; C. E. Pooley, vice-president; H. W. Treat, secretary and treasurer. Messrs. Blewett and Treat are the managing directors. The capital stock is $5,000,000 and par value $1.

Messrs. Blewett and Treat also own the Raven claim, covering 150 acres, which is equipped wth steam hoist and pump. The ore is low and will not pay until there is a smelter on the island. A shaft is down 150 ft. and a tunnel has been run 200 ft. The property has no connection with the Van Anda Copper and Gold Company. Work has stopped for the present. The other property is the Spratt group of 7 claims covering 350 acres. Messrs. Blewett and Treat have leased one of the claims—the Peta—the only one worked—to the Everett Smelter of Everett, Wash. Cobalt deposits have been found in this group, especially on the Lucky B.

British Columbia—Vancouver Island.

The reports of the principal coal companies show a large increase in production in 1898, as follows:

	1897.	1898.
New Vancouver Coal Co.	319,277	520,222
Wellington	232,255	315,738
Union	246,926	236,395
Alexandria	—	45,560
Total tons	798,458	1,118,915

The exports to the United States during the year totalled in value $2,118,211, as against $1,511,648 for 1897.

Nova Scotia.

Arlington Gold Mining Company.—The stamp mill of this company at Mooseland, near Halifax, was burnt recently.

Gold Production.—In its preliminary statement the Department of Mines states that in 1898 86,331 tons of ore were crushed, yielding 31,105 oz. of gold bullion. This is 4,000 oz. ahead of the best previous year, 1867, when the yield was 27,314 oz. In 1897 the output was 76,559 tons of ore, yielding 26,597 oz. bullion. There has been a decided increase in the amount of labor needed.

Moose River Gold Mining Company.—This company's mill at Caribou yielded 19½ oz. gold in December from 318 oz. of ore crushed.

Nova Scotia—Pictou County.

Drummond.—The output of this colliery, of which A. Fergie is manager, is stated to have been about 210,000 tons in 1898, and an average of 500 hands was employed throughout the year. An under seam has been opened; a shaft sunk 220 ft., and an incline driven 2,700 ft. A new duplex Rand compressor has been put in, to be used for pumping instead of steam. The Halsey pneumatic pump, which has been given a thorough trial, has been found to work satisfactorily.

MEXICO.

A strong effort is to be made to have the mineral industry of Mexico well represented at the coming Paris Exposition. The Government is now considering the names of a number of persons to undertake gathering the proper display, and putting it in order for the exposition. Mexico will be will represented at Paris, and naturally the mining industry should receive a great deal of prominence.

Sinaloa.

(From Our Special Correspondent.)

The survey for the Topia Mining Company's railroad from Topia, Durango, to Culiacan, has been finished. The road will open up a good mining section.

Col. J. R. De La Mar and Victor M. Clement have been examining the property of the Palmarito Mining and Milling Company at Palmarito, in the District of Mocorito. Mr. De La Mar pronounces it one of the biggest prospects he ever saw. They returned December 29th to Culiacan, for Guaymas.

Perry Fuller, the well-known engineer, has recently been granted the concession in this State for sinking artesian wells. If proved successful it will improve greatly the value of the coast lands, which are very fertile and only lack an inexpensive mode of irrigation. Mr. Fuller expects to commence work shortly.

NEWFOUNDLAND.

(From Our Special Correspondent.)

Newfoundland Iron Ore Company.—This company is opening iron mines on the east coast near Trinity Bay. Two shafts are down some distance. A 6 mile railway line, port and docks are being built. The company expects to ship a large amount of ore to Europe, particularly to Great Britain. It has had two of its engineers looking over the Lake Superior iron ranges, studying the mining and transportation methods in vogue there. The company expects to adopt the improvements in common use in the Lake trade.

COAL TRADE REVIEW.

New York. Jan. 20.

Anthracite

With wintry weather prevailing pretty steadily all over the territory where anthracite is consumed, producers and dealers are in a cheerful frame of mind. The trade at the head of the lakes and in Chicago territory is in good shape. In the East buying at seaboard points varies with the weather, and is largely of the hand to mouth order, but the demand at interior points is pretty steady. The only point where there seems to be dissatisfaction is Boston. Here dealers are complaining of prices that leave no profit, but this state of things is due in large part to the action of the Metropolitan Company and the desire among different interests for the lion's share of trade. Talk of consolidations and agreements continues. Most of this talk is delightfully vague. It seems to rest on Mr. J. P. Morgan's interest in Lehigh Valley, and speculations over who is going to be Mr. Samuel Sloan's successor in handling the affairs of the Delaware, Lackawanna & Western. Until this last point is decided at the Delaware, Lackawanna & Western annual meeting next month, all stories about agreements and consolidations can be taken with a grain of salt.

The probable output for this month is put at 3,250,000 tons, and the outlook is that such a tonnage can be absorbed without stocks accumulating. Prices are firmer. The scarcity of vessels is interfering greatly with coastwise shipments, and large amounts of coal are hung up in cars. Chestnut coal continues very scarce, and some companies are out of the market on this size. Broken and egg are in liberal supply. We quote for free burning white ash f. o. b. New York: Broken, $3.25; egg, $3.40; store, $3.60; nut, $3.55; pea, $2.60; buckwheat, $2; rice, $1.75.

Bituminous.

As nothing has yet been made public about the control of freight rates from mines to tide next year by the main line roads, but few contracts have been taken, and contract business awaits the word from headquarters. The demand for soft coal is undiminished from along the Atlantic seaboard, and shippers are finding increasing difficulty in getting coal forward. Those who have to supply railroad companies or other large consumers are practically helpless at the hands of captains and vessel owners. Rates for ocean freight have climbed so high as to be nearly out of sight, and are in some cases as high as the price of the coal itself at the shipping port. The great bulk of the coal going forward continues to come from the New York harbor ports. Vessels are very scarce and in great demand, with no prospects of the supply increasing for some time. On January 16th the rate from Philadelphia to Boston was $1.75; from Baltimore to Boston, $1.85; and Philadelphia to Sound ports, $1.35. The rate from Perth Amboy to Boston is $1.35.

Prices are firm, and we quote Clearfield at Philadelphia, best grades, $1.80; poor grades, $1.30; George's Creek at Baltimore, $1.70; Pocohontas at Norfolk, $1.70; New River at Newport News, $1.70; best grades at New York, $2.25; poor grades, $1.60.

Birmingham, Ala. Jan. 16.

(From Our Special Correspondent.)

The coal trade in Alabama is very good and prospects are very bright. The Sumter mines in the Blue Creek region are working again with a new tipple and good hoisting machinery. Between 12 and 15 cars of coal a day are loaded. The mines in Jefferson County are working hard and the output is heavy. At some places work goes on night and day. Coal is still scarce and some of the larger consumers are calling for fuel. The Walker County mines at Horse Creek are mining considerable coal for use on the Government transports. In Tuskaloosa County the mines at Brookwood and Milldale are working hard. Much of the coal is shipped, but no little is manufactured into coke, for which there is a big demand. In Bibb County the mines are working steadily, with a demand for every pound of coal that can be gotten out. The mines at Belle Ellen, where 15 cars of coal are loaded daily, were idle two days during the past week through the blowing down of a smokestack. Fair prices are being obtained.

Chicago. Jan. 18.

(From Our Special Correspondent.)

Anthracite coal is in fair demand in the wholesale way, and the advance recently made to $4.75 per ton seems to hold. While another advance of 25c. may be expected, it is hardly desirable. The demand for chestnut coal continues brisk, and the quantity of this size in the markets of the West and Northwest appears to be growing less. Out of town trade is rather more brisk, though quantities are not large. The tonnage of anthracite coal received in Chicago by rail and lake for the year 1898 footed up 1,820,000 tons, an increase over 1897 of about 50,000 tons.

Bituminous coal is in good demand, large buying being in order and at prices that are considered good. Manufacturing concerns and railroads are large buyers, and the outlook is very bright. There is no more soft coal in town than is necessary, and new supplies are absorbed as quick as they reach market. The receipts of soft coal at this market during 1898 foots at 5,370,000 tons, as against 4,770,000 in 1897.

Pittsburg. Jan. 19.

(From Our Special Correspondent.)

Coal business was active both for local purposes as well as river shipments; the exports by water on the first rise will aggregate about 5,550,000 bushels, destined principally to the Southern market. This cleared the harbor, excepting 2,500,000 bushels, which will likely leave before the close of the week. Consumption has been large for some time. Factories and mills have taken their full share. The Miners' National Convention has been in session for some time and has transacted a large amount of business, including the election of officers.

The tonnage sent out of Pittsburg by the Ohio River in 1895 was very large from this city. The total tonnage carried by tow-boats and packets amounted to 3,586,820 tons, which is a half million tons in excess of last year. There were shipped down the Ohio River from Pittsburg 1,160 coal boats and 3,565 barges of coal. There was towed up stream 522 coal boats and 3,203 barges. The coal boats not returning to Pittsburg were left at New Orleans. There passed through the lock and the main pen, 346 packets coming up and 356 passed down; of the tow-boats, 1,211 passed up and 1,232 down. The tonnage was coal and freight.

The meeting held by the coal operators at the Monongahela House here was the largest held for years. Forty-four railroads and 24 river operators were present. Alexander Dempsey presided and George W. Thles was the Secretary. A committee was appointed to look after the interest of the coal operators. The committee will prepare their side of the case for the operators of the Pittsburg District. The operators will be lined up against an advance in the price of mining, against the eight-hour work day and the run-of-mine system.

At the Interstate Joint Convention a conciliatory spirit seems to pervade the leaders of the coal operators and the miners, which justifies the expectation that the differences between capital and labor in this important industry will be adjusted on equitable terms.

Connellsville Coke.—So far we have not heard of any contracts made sufficient to establish the rates for coke for the present year; prices are said to be irregular; one leading firm said that prices were $1.50@$1.60 for furnace coke. The week's shipment shows an increase of 623 tons over the preceding week, and would have been larger had the car supply been what it ought to have been.

The Federal Steel Company is reported to have purchased the Puritan coke plant at Baggaley station, on the Southwest Pennsylvania Railroad, from Ralph Baggaley and other Pittsburgers, paying $1,500,000 for it. It is probable formal control will be taken about February 1st. Plans which were prepared some time ago for the enlargement of the plant will probably be carried out, which will add about 300 ovens. At present the Puritan plant consists of about 400 ovens and 900 acres of excellent coking land.

Summary shows 18,904 ovens in the region, with 15,431 in blast and 3,473 ovens idle. Production, 157,614 tons; shipments to Pittsburg, 3,132 cars; sent West, 4,409 cars; sent East, 1,291 cars. Total, 8,832 cars.

Shanghai, China. Dec. 24.

(From Our Special Correspondent.)

Coal.—In Japan coal there has not been much activity, and we do not expect any business until after the Chinese new year. Several new grades of coal have been sent here, and from their appearance and the price asked we cannot but anticipate a decline in present quotations. In Cardiff a slight demand took place, and lots were sold at 19.50 taels, but the market closes weak. No business has been done in Sydney Wollongong from first hands, but a good retail trade is reported at 13 taels. Arrivals of all kinds of coal during the past fortnight amounted to 20,912 tons. Quotations, per ton, are as follows: American anthracite, 15 taels, nominal; Welsh Cardiff, 19 taels; Australian, Wollongong, steamer cargo, 12 taels, and other sorts 6.75@7 taels; Japan, all contracted for; China, Kaiping, lump, 7@8 taels, mixed 5.80@6.50 taels, and dust, 6 taels.

Kerosene Oil.—A very poor business has been done in American oil, and prices have considerably declined; sales by native dealers are reported at 1.63½@1.64 taels per case. There have been no arrivels during the fortnight. Stocks on hand amount to 1,112,429 cases. Russian oil shows a small business, while importers refrain from quoting. Stocks are 396,400 cases. Sumatra oil is neglected, while stocks amount to 26,000 cases. Quotations, per case, are as follows: American Devoe's 1.75 taels; Russian Batum, Anchor and

Horse Chop, 1.65 taels; and bulk oil, 1.55 taels; Sumatra Langkat, 1.65 taels; all for two months' delivery, less 2 per cent.

SLATE TRADE REVIEW.

New York. Jan. 20.

The list of prices per square for No. 1 slab standard brand f. o. b., at quarries is given below:

Prices of Roofing Slate.

Size, inches	Monson or Br'n ville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Lehigh.	Peach Bottom.	Sea Gr'n.	Unfad'g Gr'en.	Red.
	$	$	$	$	$	$	$	$	$
28 x 14..	.....	....	.....	.....	.....	.....	2 50	....	.....
26 x 24...	.....	....	.....	.....	.....	.....	2 50	....	.....
24 x 16...	.....	.....	.....	.....	.....	4.75	.....	....	.....
24 x 15...	.....	.....	.....	.....	.....	4.75	.....	....	.....
24 x 14...	6.10	3.35	2.90	3.26	3.50	4.85	2.50	3.50	.....
24 x 13...	.....	.....	.....	.....	.....	4.85	.....	....	.....
24 x 12...	6.60	3.35	2.90	3.25	3.50	5.10	2.50	3.50	.....
24 x 10...	.....	.....	....	.....	.....	5.00	.....	....	.....
22 x 14...	6.10	.....	.....	.....	.....	5.00	2.40	3.50	.....
22 x 13...	.....	.....	.....	.....	.....	5.00	.....	....	.....
22 x 12...	6 60	3.50	3.00	3.25	3.00	5.00	2.50	3.50	...
22 x 11...	6.50	3.50	3.00	3.25	3.00	5.00	2.75	3.75	.....
20 x 14...	6.40	....	.....	.....	....	....	2.50	3.50	.....
20 x 13 ..	.....	.....	.....	.....	.....	5.00	.....	....	.....
20 x 12...	6 90	3.50	3.00	3 60	3.75	5.00	2.50	3.75	.....
20 x 11.	6.80	.....	.....	3 25	.....	5.00	2.50	3.75	.....
20 x 10...	6.80	4 00	3.25	3.50	3.80	5.10	2.75	4.00	10.50
18 x 18...	.....	4.00	.....	.....	....	....	.....	....	.....
18 x 14...	6.50	....	.....	.....	.....	....	.....	....	.....
18 x 12...	6.80	3.50	.....	3.00	....	5.00	2.50	3.50	.....
18 x 11...	7.00	.....	.....	.....	....	5.00	2.50	3.75	.....
18 x 10..	7.20	4.00	3.25	3.50	3.80	5.10	2.50	4.00	10.50
18 x 9...	7.10	4.00	3.25	3.50	3.80	5.10	2.50	4 00	10 50
16 x 16...	7.00	4.00	.....	....	....	....	.....	....	.....
16 x 14 ..	..	4.25	.....	.....	.....	....	.....	....	.....
16 x 12...	6.80	3.50	.....	3.00	....	.....	2.40	3.50	.....
16 x 11...	6.90	....	.....	.....	3.00	....	.....	....	.....
16 x 10...	7.10	3 75	3 25	3.50	3.80	5.00	2.40	4.00	10.50
16 x 9	7.00	4 00	.....	3.50	3.80	5.10	2.40	4.00	10.50
16 x 8...	7.20	4.00	3.25	3.50	3.80	5.10	2.40	4 00	10.50
14 x 14 .	7.00	4.00	....	.....	....	....	....	....	.....
14 x 12...	6.50	....	.....	.....	.....	....	2.25	....	.....
14 x 10...	6 60	3.50	3.15	3.25	3 75	....	2.25	3 75	10.50
14 x 9...	6.50	....	.....	.....	3.40	4.85	2.25	3.75	10.50
14 x 8...	6 69	3 50	3.15	3.25	3.40	4.85	2.20	4.00	10.50
14 x 7...	6.40	3.50	3.15	3 25	3.40	4.85	2.20	4.00	10.50
12 x 10...	5.80	3.50	.	....	.....	4.60	2.20	3.25	.....
12 x 9...	5.60	....	.....	.....	....	4.60	2.20	3 25	.....
12 x 8...	5.50	3.25	.....	3.25	3.25	4 60	2.20	3.25	9.00
12 x 7...	5.00	3.25	.....	3.25	3.25	4.60	2.20	3 25	9.00
12 x 6...	4.80	3 25	....	3 25	3.25	4.60	.....	3 25	8.50
11 x 10...	.....	3.50	.....	.....	.....	.....	.....	....	.....
11 x 8.	4 50	.....	.....	.....	.....	.....	.....	....	.....
11 x 7...	4.00	.....	.....	.....	.....	.....	.....	....	.....
10 x 12...	....	....	.....	.....	.....	.....	.....	....	4.50
10 x 11....	.....	....	.....	.....	.....	.....	.....	....	4.50
10 x 8 .	4.00	.....	.....	.....	.....	.....	.....	....	6.50
10 x 7...	..	.....	.....	.....	.....	.....	.....	....	6 50
10 x 6 .	.....	.....	.....	.....	.....	.....	.....	....	6.50
10 x 7...	3.50	....	.....	.....	.....	.....	.....	....	.....

A square of slate is 100 sq. ft. as laid on the roof.

In Brownville and Monson delivery quotations can be had somewhat lower than above, which is also true of other brands. No. 1 Bangor are 50c. extra when full 3-16 in. thick. Purple sizes run 24x12 and 14x7, and vary from $3.75 to $4 per square. Variegated and mottled, $2.25@$2.90 per square, according to size. Intermediate sea green, sizes 24x14 to 18x10, $2.25@$2.35; 16x12 to 16x10, $2.10; 16x9 to 14x8, $2 per square. Intermediate red, 14x7 and larger, $6; 12x6, 12x7 and 12x 8 in., $5 per square, net.

Demand for roofing slate for home consumption continues light, while from abroad a few fair-sized orders have recently been received. Prices are still low and much in buyer's favor.

The shipments of roofing slate from Slatington, Pa., during the week ending January 12, amounted to 1,679 squares, against 2,903 squares in the previous week. The movement in blackboards was also less, but school slates showed an increase. The roofing slate shipped from Walnutport for the week of January 12 amounted to 59 squares, or one square less than in the preceding week. An increase is noted, however, in the movement of blackboards. For the week ending January 12, Danielsville reports shipments of 1,115 squares of roofing slate, 14 crates of blackboards, and 98 crates and 51 pieces of flagging.

Mill stock is moving slowly at a very small margin. Some export business has recently been done in slabs, and we understand a London house has placed an order with one of our large school slate manufacturers for several hundred cases a month. Lately a good business has been done in slate flour from the mills for use in making paint, and for mixing with cement. The middle West has bought much of this ground slate, which is worth from $7.50@$10, and more per ton, according to quality.

Export business is reported fair in some quarters, while a few of the larger concerns say they have received more orders. The freight market is still rather firm, though rates are nominal. To London contracts can be placed at 13s. 9d., but shippers will not entertain this figure. Manchester spot business is quoted 15s., while to Liverpool it is said 12s. 6d. can be had on contract. Some business has been done to Cardiff, Wales, at 20s., but this figure is for single lots of roofing slate. Bristol, England, freight room is worth 15s. The exports from New York for the week ending January 17 included the following: To London, 82 carloads roofing slate ($23,819); Liverpool, 50 crates slabs ($750); Manchester, 5 carloads roofing ($1,000); Newcastle, 16 carloads ($2,835); Australia, 35 cases ($385); British Africa, 43 cases school slates ($177); British East Indies, 330 cases ($779); Mexico, 125 cases ($309); Argentine Republic, 50 cases ($124); Uruguay, 56 cases ($203); total value, $30,381. We are aware that large exports of roofing slate will be made to London on January 20, on the steamer "Manhattan." The steamer "Montcalm," booked to sail for London this week, had a number of carloads of red and sea green slate on board.

The exports from Baltimore for the week were 139 short tons roofing slate ($2,480) for Dublin, and 282 tons ($5,020) for Belfast, Ireland.

Apropos our trade in South America and the West Indies we hear that a leading slate export firm intends to publish a price-list in Spanish for circulation in those countries.

It is reported that the quarries in the Peach Bottom District have formed a combination to be known as the American Slate Company, with a capital of $150,000. The properties are to be developed on a larger scale to fill export orders. The present output is less than 30,000 squares of roofing slate a year, the value of which is estimated at about $98,000. We also understand that combination talk is prevalent in the Bangor region.

CHEMICALS AND MINERALS.

(For current prices of chemicals, minerals and rare elements, see also page 112.)

New York. Jan. 20.

Heavy Chemicals.—Domestic soda ash is moving in a good way at unchanged prices, while the imports of the foreign have fallen off. Bleaching powder of English make shows further contracting at quotations, while the prime Continental is being booked at $1.45@$1.50 per 100 lbs. Imports of bleaching powder from Belgium have been fairly good. Receipts of domestic soda ash amounted to 190 bbls. and 500 sacks. Speculators are again active in chlorate of potash, and further sales of crystals have been made at 8¾@9c.

Quotations are: Caustic soda, domestic, high test, $1.40@$1.45 per 100 lbs. f. o. b. works; $1.50@$1.65 delivered. Foreign caustic soda, high test, $1.60@$1.70 delivered, according to test and quality. Powdered caustic soda, 2¾@3c. Alkali, domestic, 55@60c. f. o. b. works; 65@70c. delivered; foreign, 70@75c. Bleaching powder, English prime brands, $1.50@$1.65 per 100 lbs.; other brands, $1.40@$1.50; Continental F. prime, $1.45@$1.50. Bicarb. soda, domestic ordinary, $1.15@$1.25 per 100 lbs. f. o. b. works. Natrona brand, $1.65; "Arm and Hammer brand," $3.25@$3.50, less the usual discount; foreign, $2.12½@$2.25 per 100 lbs., according to brand and style of a package. Sal soda, domestic, 50c. per 100 lbs. f. o. b. works, less the usual discounts; English, 60@62½c. per 100 lbs. Concentrated sal soda, foreign (crystal carbonate), $1.60@$1.70 per 100 lbs.; domestic (monohydrate crystals), $1.25@$1.35 per 100 lbs.; "snowflake," $1@$1.12½ f. o. b. Syracuse. Chlorate of potash, crystals, 9⅛@9¼c.; powdered, 9¼@9½c. per lb.

Acids.—The advancing market for raw materials has been reflected in the acid trade, especially in blue vitriol, which was quoted at 5c. per lb. one day this week, but there are offers now around 4½c. A favorable feature of this market is the good export demand, and recently several large lots have gone to Europe. The other acids are moving in a regular way on contract at practically unchanged prices, excepting that oxalic acid has been offered by speculators at 6½c., while the syndicate asks 6¼c.

Quotations per 10 lbs. for New York and vicinity are as follows: Acetic acid, commercial, No. 8, $1.30@$1.40; muriatic acid, 18°, $1.10 for drums, and $1.15@$1.75 for carboys; 20°, $1.20@$1.87½; 22°, $1.35@$2.25, according to quantity and brand. Nitric acid, 36°, $3.50@$4.75; 38°, $3.75@$4.62½; 40°, $4@$4.87½; 42°, $4.62½@$5.25. Oxalic acid, $6.25@$6.50. Mixed acids, according to mixture. Sulphuric acid, 66°, $1.10 for drums and $1.15@$1.75 for carboys. Chamber acid, 50°, in a jobbing way, $11.50@$12 per ton f. o. b. factory. Blue vitriol (copper sulphate), $4.25@$4.50 per 100 lbs. for best grades.

Borax.—Rumors of a combination between domestic and foreign borax companies are afloat, and it is reported that seven concerns, headed by the Pacific Coast Borax Company, have agreed. It is stated that the new company will be known as the Borax Consolidated Company, Limited, and the capital is $7,000,000. It is also stated that this is essentially a foreign concern—made up of English, French and South American firms. The borax produced in South America finds its way to England, where it is refined. In America the Pacific Coast Borax Company **practically controls the business. It is supported largely by English capital, and does business** in that country under the firm name of the Pacific Coast Borax & Redwoods Chemical Company. There is an import duty of 5c. per lb. on foreign refined borax; hence the American makers have a monopoly here. It is asserted that the combination will advance prices.

Brimstone.—Arrivals amounted to 3,150 tons. Best unmixed seconds are quoted at $21.25@$21.50, and thirds $2 less per ton, while business is rather quiet.

Pyrites.—There has been a good demand for fines, while the market ruled firm. Prices are unchanged, and no arrivals are noted at this port.

Spanish pyrites contain from 46% to 51% sulphur, the American from 42% to 44%, and Pilley's Island, N. F., about 50%. Quotations are: American lump ores (basis 52%), $3.25 per long ton f. o. b. mines, Mineral City, Va.; $5 per long ton f. o. b. mines, Charlemont, Mass., and $6.50 per long ton for Pilley's Island, delivered in New York. Fines are $3 per long ton, f. o. b. Mineral City, Va.; $4.25 at Charlemont, Mass., and $4.50 for Pilley's Island, delivered in New York. Spanish pyrites, 11@13c. per unit, according to percentage, delivered ex-ship New York and other Atlantic coast ports.

Nitrate of Soda.—This market is very quiet, and there is no pressure to sell. The coast market is unchanged, while the European is steady. Recent arrivals aggregated 34,000 bags. Word has been received by an importer that a vessel carrying a large quantity of nitrate of soda returned to Valparaiso to discharge her cargo. Spot nitrate of soda is quoted in New York at $1.60 per 100 lbs., while for future delivery some business has been done at $1.55. The Permanent Nitrate Committee reports the total exports to Europe in December, 1898, at 3,641,000 qtls, and imports at 74,880 tons, while the deliveries amounted to 53,010 tons. There were loading for Europe on January 1st, 1899, 1,547,000 qtls., and the visible supply, including stocks and afloat on that day, amounted to 713,710 tons.

Fertilizing Chemicals.—This market is quiet, although export business in animal ammoniates have been better. Sales of blood have been made for export at $1.50@1.52½ f. o. b. Chicago and tankage at $14.50@$15.

Quotations are: Sulphate of ammonia, gas liquor, $2.70@$2.75 (basis of 25%) per 100 lbs. Dried blood, high grade Western, $1.77½@$1.80 perunit; New York, $1.65@$1.70 per unit. Azotine, $1.70@$1.75, basis New York. Concentrated phosphates (30% available phosphoric acid), 67½c. per unit. Acid phosphates, 13@15%, av. P_2O_5, 60@65c. per unit at sellers' works in bulk. Dissolved bone black, 17@18%, P^2O^5, $16@$16.50 per ton. Acidulated fish scrap, $11@$11.50; dried, $19.50@$20 f. o. b. fish factory. Ammonia superphosphates, high grades, $25@$26 per ton. Tankage, high grade, $14.50@$15 per ton f. o. b. Chicago; $18.50@$19 at New York. Concentrated tankage, $1.45@$1.50 per unit f. o. b. Chicago; low grade, $13@$13.50 per ton. Bone tankage, $19.50@$20.50; ground bone, $24@$24.50 delivered. Bone meal, $1.40@$1.50 f. o. b. Chicago.

Phosphates.—The demand for high grade Florida rock for the European market is increasing, as a number of new superphosphate manufacturers have started up. Prices have risen as stocks are small, and the last sale reported from Germany was at 8¼d. per unit c. i. f. Stettin. Deducting the necessary charges, including 18s. freight, the price paid for 80% rock f. o. b. Fernandina was about $8.75 per long ton. The latest quotations for Florida high grade rock, c. i. f. United Kingdom or North Sea ports, for shipment in the Spring, are 8½d. per unit, and for Summer and Autumn, 8¼d., while no spot is offered. In land pebble the usual amount of business is reported for home consumption, while for export the quotation c. i. f. United Kingdom or North Sea ports is 7¼d. per unit for 63@73%. Peace River Rock is also offered for export, and abroad the c. i. f. quotation is 7d. per unit for 58@63%. In Tennessee phosphates interest is centered in the new discoveries near Mt. Pleasant. It is said that the deposits in the older fields are not showing up as well as was expected. However, there is a better demand from abroad, where 7¼d. per unit is quoted for 78@80% rock. This is the same price asked for 63@70% Algerian phosphates c. i. f. United Kingdom or North Sea ports. Of the charters taken this week we note a British steamer of 1,600 tons from Tampa to a Baltic port at 21s. 6d. ($5.22), January sailing, and another of 1,205 tons from Coosaw to Dublin, Ireland, at 18s. ($4.32). We note also that 3,000 bags of phosphate were imported from Antwerp, Belgium.

Quotations are: Florida high grade, 75@80% rock, $8.75@$9 per long ton f. o. b. Fernandina. The freight rate to New York is about $2 per ton. Florida land pebble, 68@73%, quoted at $5.50@$6 per ton, delivered in New York. South Carolina ground rock is worth $5.50 to $5.75 per short ton, delivered in New York; sun dried, $3 per 2,240 lbs. f. o. b. Ashley River; hot-air dried, $3.25@$3.45 f. o. b. same place. Tennessee phosphate, $2.20@$2.30 f. o. b. Mt. Pleasant, according to quality.

Charleston, S. C. Jan. 11.

(From Our Special Correspondent.)

There has been a decided advance in the price of phosphate rock. The offerings of high grade land rock that had been made at $3@$3.25 per ton, have in some cases been withdrawn entirely, and other sellers are now asking $3.50 f. o. b. mines, Ashley River. There is also a decided advance in river rock for which $3 net is asked f. o. b., at Beaufort for prompt shipments; futures will not be entertained. Market is very strong with an advancing tendency. Stocks are very light, and prompt shipments are almost unobtainable at any price.

Corrected figures for 1898 give the domestic shipments of land phosphate rock from Charleston at 149,958 tons and the foreign shipments of river rock from Beaufort at 54,091 tons, making a total of 204,049 tons. There was consumed at Beaufort 12,000 tons of phosphate river rock, and at Charleston 185,000 tons land rock, a total of 197,000 long tons. The total production for South Carolina in 1898 was therefore 401,049 long tons. The shipments from Brunswick, Ga., for the year ending December 31, 1898, amounted to 62,206 tons reported as Florida rock.

Liverpool, Jan. 11.

(Special Report of Joseph P. Brunner & Co.)

There is more moving in chemicals, and in some cases quotations are slightly dearer. The exports of alkali for the month ending December 31st, 1898, are rather heavier than for the same period of the previous year, and this in spite of the marked decrease in shipments to the United States. The shipments for the 12 months ending December 31st last compare very unfavorably with previous years, however, which is only natural, taking the severe foreign competition into account. The following are the particulars of exports for alkali and bleaching powder for the 12 months ending December 31st, 1898, 1897 and 1896: Alkali, total exports, 3,771,223 cwts in 1898, against 4,973,100 cwts. in 1897, and 4,841,300 cwts. in 1896; imports to United States alone 855,393 cwts. in 1898, against 1,925,400 cwts. in 1897, and 2,226,300 cwts. in 1896. Bleaching powder, total exports, 1,123,690 cwts. in 1898, against 1,167,000 cwts. in 1897, and 1,188,400 cwts. in 1896; exports to United States alone, 738,016 cwts. in 1898, against 754,300 cwts. in 1897, and 744,200 cwts, in 1896. Soda ash is in fair demand, while quotations vary considerably according to market, the maximum range for tierces being about as follows: Leblanc ash, 48%, £4 5s.@£4 10s.; 58%, £4 10s.@£4 15s. per ton, net cash. Ammonia ash, 48%, £4@£4 2s. 6d.; 58%, £4 5s.@£4 7s. 6d. per ton, net cash. Bags are 5s. per ton under price for tierces. Soda crystals are unchanged, and selling at various prices, according to market, the maximum quotation for barrels being £2 17s. 6d. per ton, less 5%, or 7s. less for bags. Caustic soda is selling more freely, and prices are harder. We quote spot range about as follows: 60%, £5 17s. 6d.@£6; 70%, £6 17s. 6d.@£7; 74%, £7 7s. 6d.@£7 10s.; 76%, £7 12s. 6d.@£7 15s. per ton, net cash. Bleaching powder has been meeting with more inquiry, and American orders for hardwood for delivery over this year are reported to have been filled at from £5 2s. 6d., which is the lowest figure makers will entertain, although a little is obtainable from resellers at 2s. 6d. less. Chlorate of potash is inactive, but at the same time prices are steady at 3½@3⅝d. per lb. for crystals, and 3⅝@3¾d. per lb. for powdered, as to quantity. Bicarb. soda is selling at varying prices, according to destination, ranging from £5 5s.@£6 15s. per ton, less 2½% for the finest quality in 1 cwt. kegs, with usual allowances for larger packages. Sulphate of ammonia is in a strong position, the demand being good, while owing to limited supplies buyers find a difficulty in filling orders. Prices have advanced, nearest values to-day for good gray 24@25% in double bags f. o. b. here being about £10 15s.@£10 16s. 3d. per ton. Nitrate of soda is quiet, but steady, at £7 15s.@£8 per ton, less 2½% for double bags f. o. b. here, as to quantity and quality.

IRON MARKET REVIEW.

NEW YORK, Jan. 20, 1899

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending Jan. 21, 1898		Week ending Jan. 20, 1899.		From Jan., '98.	From Jan., '99.
	F'ces	Tons.	F'ces	Tons.	Tons	Tons
An' racite	28	18,825	30	23,400	56,475	66,860
Coke.....	146	202,950	150	215,700	608,850	616,290
Charcoal.	16	5,375	20	6,120	16,125	17,490
Totals..	190	227,150	200	245,220	681,450	700,640

The iron market is in a very strong condition. Mills and furnaces generally have all that they can carry for some months to come, and are not disposed to seek new orders. The range of prices is moderately higher, and no sensational advance seems likely, though here and there an exceptional rate may be paid by parties for whom an early delivery of material is essential. Certain parties in the trade are trying to work up the cry of a pig-iron famine, but without much effect, since it is generally realized that any scarcity can be only temporary. In a few months, at most, there will be productive capacity enough to meet any possible demands.

In pig iron the largest sales have been of Bessemer and basic pig, and foundry iron has not been especially active. The Virginia Iron, Coal and Coke Company has nearly completed its arrangements to control all the furnaces along the line of the Norfolk & Western Railroad, in Southwestern Virginia, and will put several stacks in blast.

Some business is reported in steel billets, and prices are somewhat higher. It is stated that the American Steel and Wire Company has placed contracts with the Federal Steel Company for a large quantity of billets and wire rods.

In finished material trade has been active, especially in bars, plates and structural steel. Lake shipbuilders have been placing some good orders, and bridge-builders have also taken considerable material. Steel rail orders continue to come in, and prices are somewhat firmer.

Export inquiries continue to come, and the prospect is that a very large tonnage will be placed, a good deal of it for delivery in the second and third quarters of the year. The main question at present is of freight rates; but these are somewhat easier than they have been, and there is a prospect that the steamship companies may be more reasonable in their demands.

Birmingham, Ala. Jan. 16.

(From Our Special Correspondent.)

The demand for pig iron continues to be almost as large as the production. There is but little, if any, iron accumulating on the yards of the furnace or of the Warrane Company. The export trade is still very heavy, with no indications of an early abatement. Mr. W. H. Applegate, traffic manager in this territory for Rodgers, Brown & Company, is busy booking shipments of pig iron, and is preparing for a trip to all the ports through which Alabama iron is shipped.

There has been no advance in prices lately, though there was some talk of a possible advance for No. 2 Foundry. The old rate of $8 per ton for No. 1 Foundry, with $7.75 to $8 per ton for No. 2, Foundry, seems to hold. The following are the figures publicly given for pig iron now: No. 1, Foundry, $8; No. 2, Foundry, $7.75; No. 3, Foundry, $7.50; Gray Forge, $6.50 to $6.75; No. 1 Soft, $8; No. 2 Soft, $7.75 to $8.

The domestic and local demand for pig is also brisk. The foundries and machine shops have plenty of work, and the rolling mills have a number of good orders on hand.

Orders for iron now are for small lots. The Warrant Company is sending out some of its iron stored in this district on orders received through brokers, and some of its iron is going to the export trade also.

The iron pipe trade is in very good condition. There have been startling rumors, one of them being that the pipe works at Anniston, Ala., would be moved to Bessemer. This is not true, but improvements will be made on the factory already there, while the Addyston Pipe and Foundry Company, of Ohio, is to build a large factory in the Birmingham District. There is a good demand for iron pipe and during the present year the export trade will receive attention.

Buffalo, N. Y. Jan. 18.

(Special Report of Rogers, Brown & Co.)

The conditions in the pig iron market in this district during the past week have shown practically no change from those of last week. Very little new business has been offered, and local furnaces continue to be taxed to their utmost to meet the demand for shipments. Prices are very firm on the following basis, cash f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $12.25; No. 2 strong foundry coke iron, Lake Superior ore, $11.75; Ohio strong softener, No. 1, $11.75; Ohio strong softener, No. 2, $11.25; Jackson County silvery, No. 1, $14; Southern soft, No. 1, $12.25; Southern soft, No. 2, $12; Lake Superior charcoal, $12@$12.50; coke, malleable, $11.75.

Chicago. Jan. 18.

(From Our Special Correspondent.)

Pig iron business so far this year has been very good, a fair tonnage having been placed, and a continued good buying is the prospect. Sales have been as high as 2,000 tons to one concern, a few of such having been closed, while a number were for from 500 to 1,000 tons. Sales as made from January 1st to date have been at market prices, and in a few instances a small advance has been obtained. Both Northern and Southern furnaces are looking for higher prices, and if the Southern furnaces can agree, an advance in prices will surely occur. Quotations are as follows: Lake Superior charcoal, $11.50@$13; local coke foundry, No. 1, $11.50@$12; No. 2, $11@$11.50; local Scotch foundry, No. 1, $11.50@$12; No. 2, $11@$11.50; No. 3, $10.75@$11; Southern coke, No. 1, $11.35@$11.85; No. 2, $11.10@$11.60; No. 3, $10.85@$11.10; Southern No. 1 soft, $11.35@$11.85; No. 2 soft, $11.10@$11.60; Southern silveries, $11.75@$12.25; Ohio strong softeners, $12@$12.50; coke Bessemer, $11@$12.

Bar Iron.—Bar iron is in good demand, a number of orders each for 3,000 tons or more having been placed during the past two weeks. Buying is quite general, the agricultural implement and car people being heavy buyers. Prices are firm. Common iron is quoted 1.10@1.15c.; guaranteed, 1.15@1.20c.

Steel Rails.—Some sales are being made at $20, Chicago. Heavy sections are in most demand. Some good inquiry now in is liable to lead to large business ere long. Quotations are $20@$22.

Billets and Rods.—Business in both billets and rods is only in a small way, a few small sales having been booked. Billets are quoted $17.50; rods, $23.

Cleveland, O. Jan. 17.

(From Our Special Correspondent.)

Iron Ore.—During the past week a number of small sales were made from the stock piles on the Lake Erie docks to supply immediate demands. No large transactions have as yet been reported during the new year, and, so far as can be learned, the agents of the mining companies have made no agreement as to the price or quantity of ore to be moved during the coming season. Some big sales will certainly be made in the near future, however, as liberal tonnage has been taken for the transportation of ores. Vessels have been chartered to bring ores from Escanaba and the head of Lake Superior, at 50c. and 60c., respectively. The following prices will prevail: Specular and magnetic ores, Bessemer quality, $3.25@$3.65; specular and magnetic ores, non-Bessemer quality, $2.50@$2.75; hematite ores, Bessemer quality, $2.55@$3.25; hematite ores, non-Bessemer quality, $2.10@$2.25.

Pig Iron.—The consumption of metal being large, the pig iron market remains firm and the tendency of prices is upward. This is especially true of foundry irons, and during the past week some very fair sales have been made of that variety. The following are the quotations, f. o. b., Cleveland: Lake Superior charcoal, $11.75; Bessemer, $10.75@$11; No. 1 Foundry, $11@$11.25; No. 2, $10.65@$10.90; No. 1 Ohio Scotch, $11@$11.25; No. 2, $10.65@$10.90; gray forge, $10.15@$10.40.

Pittsburg. Jan. 19.

(From Our Special Correspondent.)

Business in all departments has been well maintained; the first month of the year has shown up exceedingly well in most departments; prices are well sustained; while for many products more money is required. There is no particular reason why there should be any demand of importance just now, because the condition of order books proves that the legitimate wants of consumers are liberally provided for; so that anything beyond that would partake somewhat of a speculative character. Producers are doing their best to avoid this, although there is a good deal of inquiry, and in some lines quite a respectable turnover, particularly in steel, finished and semi-finished. As we have before remarked, the tendency is toward firmer prices, not especially toward an advance, but quotations are made in such a way that buyers have to limit the extent of their purchases, and also to limit the time for delivery. In other words, a great deal of the business is not wanted, consequently the terms quoted are such as will be likely to fairly test the legitimacy of the demand.

Pig Iron.—There is a good deal of talk about syndicates, extensive operations to be undertaken on foreign account and various other matters, all of which are important if true. There is undoubtedly some basis of truth for these rumors, but they are so indefinite and so immature that their immediate influence on the markets is not likely to amount to much. The market will bear close watching, however, because it is impossible to tell what shape they will take or how soon.

Finished Material.—There is more business offered than is accepted; prices are stiffer and advancing; many of the plants have sufficient orders booked to last for some time. There has also been a further advance in structural material; besides, the home demand continues unprecedented, to say nothing of expert inquiry.

Steel Rails.—The market is both firm and active; the mills are all liberally supplied with orders; the advance was maintained and a further one is talked of; it looks very much like $20 steel rails in the near future.

Wire nails are very firm; prices show a further advance, with sales for the next 30 days at $1.50. The market is now under the control of the American Steel and Wire Company.

Wrought Iron and Steel Pipe.—The plants are all employed to their full capacity; a further advance is among the probabilities; prices for some time have been very unsatisfactory; the mills are all bare of stock.

Steel wire rods are very firm; a further advance established last week; the tendency is upward.

Skelp iron and steel is firm, with an increased demand; prices advanced last week.

Latest.—Business continues to show up well,

while some dealers are disposed to purchase sparingly, others are inclined to take hold freely; the result was a fair valume of sales. Bessemer and billets are firm, although there was a slight falling off in the demand. Mill iron is firm and held generally for more money. Sheet bars are firm at the late advance. Skelp iron and steel are held firmly at current prices; taken as a whole, the outlook has a healthy appearance.

COKE SMELTED LAKE AND NATIVE ORE.

Tons.	Cash.
7,500 B., F., M., A., V.	$10.50
5,000 B., J., A., P.	11.15
5,000 B., F., M., A., V.	10.50
3,000 B., J., P.	11.00
2,000 B., J., F., P.	11.10
2,000 B., F., M., A., V.	10.50
2,000 B., J., F., V.	10.50
1,500 No. 2 F'y., J., A., P.	10.55
1,500 M. I'n, J., F., P.	10.15
1,500 M. I'n., J., A., V.	10.10
1,000 S'd B., J., F., P.	11.25
1,000 B., F., M., P.	11.10
1,000 B., J., F.	11.15
1,000 M. Ir., F., M., V.	10.00
1,000 M. Ir., Prompt, V.	10.00
500 B., J., P.	11 00
500 Mill Ir., V.	10.00
500 No. 2 F'dry, P.	10 55
500 M., Ir., F., V.	10.00
250 B., Prompt, V.	10.50
200 No. 2 F'dry, P.	10.65
200 No. 1 F'dry, P.	11.25
50 No. 2 F'dry, P.	10.65

BLOOMS, BILLETS, SLABS.

5,000 B., at Mill, P.	$16.75
3,000 B., Deliv., P.	17.00
1,500 B., Deliv., P.	17.25
1,000 B., J., F., M., P.	17.50

SHEET BARS.

1,800 at Mill, P.	$18.00
1,500 at Mill, P.	18.00
1,500 at Mill, P.	18.00

MUCK BAR.

600 Neutral, D'vd, P.	19,00

STEEL WIRE RODS.

1,500 at Mill, P.	$23 15

FERRO-MANGANESE.

Tons.	Cash.
375 80%, imp. deliv., P.	$50.00

SKELP IRON

3,000 W. Gr'd, P.	$1.25 4 m.
1,000 N. Gr'd, P.	1.27½ 4 m.
500 Sheared, P.	1.37½ 4 m.
500 W. Gr'd, P.	1.25 4 m.
500 N. Gr'd, P.	1.25 4 m.

SKELP STEEL.

1,000 Sheared, P.	$1.25 4 m.
750 Sheared P.	1.25 4 m.
750 W. Gr'd, P.	1.10 4 m.
75 N. Gr'd, P.	1.10 4 m.

BILLET ENDS.

1,500 Delivered, P.	$11.50

CHARCOAL.

125 Ex. C'ld Blast, P.	$26.00
100 Ex. W'rm B'st, P.	16.50
50 No. 2 F'dry, P.	15.25
50 Cold Blast, P.	21.50
50 No. 3, C'd B'st, P.	21.50
50 No 4 Extra Cold Blast, P.	26.75
50 No. 2 F'dry, P.	15.25
50 Cold Blast, P.	21.50

OLD IRON AND STEEL RAILS AND SCRAP.

2,000 Iron Rails, gr., V.	$14.25
2,000 Steel Rails, gr., V.	10 00
800 H'y St'l Sc p, gr., P.	10.00
600 Bush. Scr'p, net, V.	9.00
400 Wrt. T's, net, P.	6 75
400 Cast Scr'p, gr., P.	9.00
400 W. Scrap, net, V.	11.50
300 W. Scrap, net, V.	11.75
300 O. Car W'ls, gr., P.	10.00
200 Cast B'ngs, net, V.	6.60

Philadelphia. Jan. 20.

(From Our Special Correspondent.)

Pig Iron.—Consumers of pig iron who did not make sufficient purchases in December are a little alarmed over the situation. The bulk of the heavy buying is over, but production is so far sold ahead that makers can afford to be indifferent and await developments in other markets and across the water. Prices meanwhile remain stationary. There is no pressure to buy though there are buyers ready to place contracts for both foundry and forge irons. The next impulse to this market will be from outside sources. Quotations are as follows: No. 1 X foundry, $12@$12.50; No. 2 X foundry, $11.50@$11.75; No. 2 plain, $11@$11.25; standard forge, $10.75@$11; ordinary, $10.25; basic, $10.75@$11; low phosphorus, $16@$16.50.

Billets.—Billets cannot be promised to-day under $19.25. Large acquirements are to be covered. Consumers do not realize the strong upward tendency and hesitate to talk business. They believe the high water mark has been reached and that easier prices will come. Makers' agents say this is impossible as matters point.

Merchant Bars.—Parties who placed orders in December are not insisting on sharp delivery. Prices are high and there is not a sign of weakness. Common, 1.07½@1.10c.; refined, 1.15c.; test bars, 1.20@1.25c.; special bars, 1.20@1.30c.

Sheets.—Prices keep the advance and will take another on thin sheets, which have been in good request ever since the opening of the year. Thick sheets will soon follow suit.

Pipes and Tubes.—The rumor of pipe mill consolidation is spoken of among buyers, but does not affect business. Prices are very strong and new work is being constantly booked. Tube quotations on small orders have been advanced.

Merchant Steel.—Heavy deliveries are being made and prices are beyond the hope of concessions at present even in this the usually dull season.

Plates.—The shipbuilding demand is absorbing very large quantities, and further orders are to be placed just as soon as the manufacturers can agree as to deliveries. Prices have moved up since Monday, and on small boiler plate orders are likely to move up still further. To-day's quotations are 1.40@1.50c.; flange, 1.60c.; firebox, 1.80c.

Structural Material.—Small orders at outside figures continue to be the rule, and manufacturers have to say that there is a very large volume of this sort of business from small builders. Angles are about 1.40c. and beams and channels 1.40@1.60c., according to size of material and size of order.

Steel Rails.—An advance to $19 is no news, nor will a quotation of $20 be much of a surprise. There is a good deal of business going to mills in a small way. There is a bright prospect for large orders. There are a good many light rails selling.

Old Rails—Firm at $13.50, but fewer are selling.

Scrap.—There are several large buyers waiting for lower quotations, which are not likely to occur. Iron axles are $15@$15.50; steel axles, $12@$12.50. Heavy steel scrap is being sought after at $11, but more money is wanted. Machinery cast is $9.50; choice railway scrap, $13.50 for best and $13 for other.

New York. Jan. 20.

There is more demand in the local market for most varieties of finished iron and steel, and dealers are looking forward to a great year's business. In export trade we note shipments of 2 locomotives and $19,430 worth of manufactured iron to Brazil; $10,000 worth of manufactured iron, $17,545 worth of plows and $12,740 worth of railroad material to Argentina; $30,000 worth of metal-working machinery, and $25,000 worth of wood-working machinery to Bremen, Germany, and $20,000 worth of railroad material to Mexico. Shipments to English ports remain heavy.

Pig Iron.—Transactions in the local market are light. Inquiries from abroad show no decrease.

We quote: Northern brands, tide-water delivery, No. 1 X foundry, $11.75@$12; No. 2 X foundry, $11.25@$11.75; No. 2 plain, $11@$11.25; gray forge, $10.50@$10.75; Southern brands, New York delivery: No. 1 foundry, $11.50@$11.75; No. 2 foundry, $11.25@$11.50; No. 1 soft, $11.50@$11.75; No. 2 soft, $11.25@$11.50; No. 3, $10.75@$11; basic, $11@$11.25.

Cast Iron Pipe.—The mills are talking over the proposed consolidation, but nothing definite is yet decided. Complaint is made at the low prices on which recent contracts have been taken, as these figures, it is alleged, do not leave much margin for profit with the rising prices for pig.

Bar Iron and Steel.—The mills have advanced prices on refined iron, and higher prices for common are asked. Foreign business is mostly confined to common bars, and is fair. The local demand is improving. We quote for large lots: Common, 1.10c.; refined, 1.20c. Soft steel bars, 1.20@1.25c.

Plates.—The market is firm. Local consumption is but moderate. We quote: For sheared plates at tidewater, in large lots: Tank, ¼-in. and heavier, 1.45c.; 3-16-in., 1.45@1.55c.; Nos. 8, 9 and 10, 1.55@1.60c. Shell is quoted for 1.40@145c.; flange, 1.50@1.60c.; marine, 1.60c.; firebox, 1.70@1.75c.; Universals, 1.35c.; charcoal iron plates, 2.25c. for shell, 2.75c. for flange; iron rivets, 2.25c.; steel rivets, 1.75@1.85c.

Structural Material.—Several good-sized contracts for buildings have been closed. We quote for large lots at tidewater: Beams, 15-in., 1.40@1.50c.; angles, 1.30@1.35c.; tees, 1.45@1.50c.; channels, 1.40@1.50c.

Steel Rails.—The market is firm with prices rising. We quote: Standard sections, $19 f. o. b. mills, with girder rails $23. Lighter rails are quoted: 12-lb., $25; 16-lb., $23; 20-lb., $23; 25-lb., $21; 30-lb., $21; 35-lb., $21; up to standard, $20, with the usual 10% advance for smaller orders; all f. o. b. mills. Track fastenings are quoted: Angle bars, 1.10c.; fish plates, 1.15c.; spikes, 1.50c.; bolts, 1.60@1.75c.

Nails.—With the American Steel and Wire Company in full control of the market, prices on wire nails are firm and advancing. We quote for large lots on dock, $1.60. Cut nails are also firmer, being quoted at $1.35 for large lots.

METAL MARKET.

NEW YORK, Jan. 20, 1899.

Gold and Silver.

Gold and Silver Exports and Imports

At all United States ports, December and year from Jan. 1.

	December.		Year.	
	1897.	1898.	1897.	1898.
GOLD.				
Exports	$577,996	$1,219 638	$34,275,401	$16,194,954
Imports	2,582 405	8,639,882	34,020,592	158,036,252
Excess	I. $2,004 409	I. $7,420,244	E. $255,809	I $141,841,298
SILVER.				
Exports	5,848,530	5,827,698	58,661,292	53,797,104
Imports	2,766,786	3,108,421	33,082,362	29 029,724
Excess	E. $3,081,744	E. $2,719,277	E $25,578,990	E. $24,767,380

This statement includes the exports and imports to all United States ports, the figures being Treasury Department.

Gold and Silver Exports and Imports, New York

For the week ending Jan. 20th, 1899, and for years from January 1st, 1899, 1898, 1897, 1896.

Period.	Gold. Exports.	Gold. Imports.	Silver. Exports.	Silver. Imports.	Total Excess, Exp. or Imp.
We'k	$600	$1,760,146	$610,200	$123,989	I. $1,243,335
1899..	109,486	1,776,061	1,489,150	217,679	I. 395,104
1898..	1,511 385	1,772,333	2,224,708	244,638	E. 1,519,122
1897..	108,900	153,851	2,481 575	104,678	E. 1,931,946
1896..	8,318,023	5,143,087	2,701,840	130,014	E. 5,746,762

Imports of gold were chiefly from Europe; of silver from South America. The silver exported went chiefly to London.

The United States assay office in New York reports the total receipts of silver at 76,000 oz. for the week.

Financial Notes of the Week.

Business continues to develop, and the volume of trade, as shown by the bank clearings and other indications, is larger than ever known before. The speculative spirit is also very strong and stocks on all the exchanges have been worked up to very high quotations. There has been some selling of American securities from Germany, in consequence of the involved conditions of business there, but all offered are quickly absorbed. Money is in good supply, and there have been only small imports of gold. The 6% rate prevalent in Berlin is a strong temptation to leave money on the other side.

The silver market has held steady on continued buying for China and the Continent. The feature at present seems to be the firmness for future business, London buyers bidding practically spot price for May delivery.

Exports of merchandise from the United States in December were the largest on record, amounting to $137,247,448. For the full year 1898 the Bureau of Statistics of the Treasury Department makes the following statement:

	1897.	1898.
Exports.	$1,099,709,045	$1,254,925,169
Imports.	742,595,229	633,664,634
Excess, exports	$357,113,816	$621,260,535
Add excess of exports, silver		24,767,380
Total.		$646,027,915
Deduct excess of imports, gold		141,841,298
Apparent balance		$504,186,617

The gold and silver movement in detail will be found in the usual place, at the head of this column.

Receipts of specie from Mexico at San Francisco, principally by rail, for the calendar year, are reported as follows:

	1897.	1898.
Silver dollars	$10,618,128	$4,462,010
Silver bullion	622,926	641,617
Gold bullion	658,775	741,807
Total.	$11,899,829	$5,845,434

These receipts last year were the smallest in several years. Two years ago the total was $9,818,582. The silver bullion is put in its gold value and the dollars at their face value in silver. Gold bullion from Mexico does not increase very much.

The statement of the United States Treasury on Thursday, January 19th, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date of last week:

	Jan. 12.	Jan. 19.	Changes.
Gold.	$237,948,577	$230,545,957	D. $7,402,620
Silver.	8,052,341	8,908,162	I. 855,821
Legal tenders	13,793,608	13,825,835	I. 32,227
Treas. notes, &c.	1,634,549	1,116,230	D. 418,319
Totals.	$261,429,075	$254,396,184	D. $7,032,891

Treasury deposits with national banks amounted to $88,989,363, a decrease of $1,098,325 during the week.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending January 14th gives the following totals, comparison being made with the corresponding weeks in 1897 and 1896:

	1897.	1898.	1899.
Loans and discounts.	$491,399,200	$610,992,600	$716,846,000
Deposits.	557,386,300	691,612,300	835,805,700
Circulation.	18,473,900	15,091,300	15,608,100
Reserve:			
Specie.	77,821,300	108,639,000	178,184,600
Legal tenders	113,697,800	90,233,000	59,029,900
Total reserve	$191,519,100	$198,872,000	$237,214,500
Legal requirement	139,344,575	172,903,225	208,951,425
Balance surplus	$52,174,525	$25,968,775	$28,263,075

Changes for the week, this year, were increases of $3,042,200 in loans, $8,924,000 in deposits, $4,742,500 in specie, $2,221,200 in legal tenders, and $4,732,700 in surplus reserve; a decrease of $250,100 in circulation.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding dates last year :

	——1898.——		——1899.——	
Banks.	Gold.	Silver.	Gold.	Silver.
N. Y. Assoc.	$108,639,000	.....	$178,184,600	.....
England. . ..	160,580,930	.....	159,842,775	.....
France.	385,395,301	$241,475,641	362,898,000	$239,526,600
Germany. . .	145,645,000	75,105,000	132,695,000	68,360,000
Austro-Hun.	182,185,000	61,680,000	179,625,000	61,960,000
Spain.	47,155,000	61,560,000	55,310,000	40,785,000
Belgium. . ..	14,305,000	7,150,000	16,100,000	8,050,000
Netherlands	13,145,000	33,945,000	21,570,000	33,740,000
Italy.	78,645,000	10,475,000	74,630,000	11,710,000
Russia.	590,385,000	19,285,000	505,270,000	20,950,000

The returns for the Associated Banks of New York are of date January 14th, the Banks of England and France January 19th, and the others are of date January 12th, as reported by the "Commercial and Financial Chronicle" cable. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Shipments of silver from London to the East for the year 1898 the reported by Messrs. Pixley & Abel's circular as follows:

	1897.	1898.	Changes.
India.	£5,806,056	£4,312,057	D. £1,492,999
China.	559,236	764,750	I. 205,514
The Straits	739,203	405,105	D. 334,098
Totals.	£7,103,495	£5,481,912	D. £1,621,583

The arrivals for the week ending January 5th were £291,000 in bar silver from New York. Shipments were £35,000 in bar silver to Bombay, and £4,300 to Hong Kong; also, £30,080 in Mexican dollars to Hong Kong, a total of £69,380.

Indian exchange continues strong, and the demand for Council bills in London largely exceeded the amount offered. Those placed were at an average rate of 16.03d. per rupee.

Daily Prices of Metals in New York.

January.	Sterling Exchange.	Silver. Fine oz. Cts.	Silver. London, P'nce	Copper. Lake, cts. ₱ lb.	Copper. Elec-tro-lytic, ₱ lb.	Copper. Lond'n stand-ard £ ₱ ton.	Tin, cts. ₱ lb.	Lead, cts. ₱ lb.	Spel-ter cts. ₱ lb.
14	4.84⅛	50⅛	27½	14¼	13¾	.....	22	4.12½	5.25
16	4.84⅛	50⅝	27½	14¼	13¾	61 5 0	22⅛	4 15	5.30
17	4.84¾	50⅞	27⅝	14¼	14	62 0 0	22⅛	4.17½	5.30
18	4.84¾	50⅝	27½	14¾	14¼	63 15 0	22¼	4.20	5.35
19	4.84¾	50⅝	27⅝	14¾	14¼	64 12 6	22⅜	4.20	5.37½
20	4.84¾	50⅝	27½	15	14¾	64 5 0	22½	4 20	5.37½

Average Prices of Metals per lb., New York.

Month.	Copper. 1898.	Copper. 1897.	Tin. 1898.	Tin. 1897.	Lead. 1898.	Lead. 1897.	Spelter. 1898.	Spelter. 1897.
Jan	10.99	11.75	13.87	13.44	3.65	3.04	3.96	3.91
Feb.....	11.28	11.92	14.08	13.59	3.71	3.28	4.04	4.02
March...	11.98	11.80	14.38	13.43	3.72	3.41	4.25	4.12
April ...	12.14	11.48	14.60	13.34	3.63	3.32	4.26	4.13
May.....	12.00	11.03	14.52	13.44	3.64	3.26	4.27	4.21
June.....	11.89	11 11	15.22	13.77	3.82	3.33	4.77	4.24
July.....	11.63	11.11	15.60	13.89	3.95	3.72	4.66	4.32
August..	11.89	11.16	16.23	13.80	4.00	3.84	4.58	4.26
Sept.....	12.31	11.30	16.03	13.98	3.99	4.30	4.67	4.18
October..	12.41	11.13	17.42	13.88	3.78	4.00	4.98	4.17
Nov.....	12.86	10.88	18.20	13.79	3.70	3.76	5.29	4.03
Dec.....	12.93	10.78	18.30	13.71	3.76	3.70	5.10	3 89
Year.....	12.03	11.29	15.70	13.67	3.78	3.58	4.57	4.12

Average Prices of Silver per oz. Troy.

Month.	1898. Lond'n Pence.	1898. N. Y. Cents.	1897. Lond'n Pence.	1897. N. Y. Cents.	1896. Lond'n Pence.	1896. N. Y. Cents.
January...	26.29	56.77	29.74	64.79	30.69	67.13
February..	25.89	56.07	29.68	64.67	31.01	67.67
March....	25.47	54.90	28.96	63.06	31.34	68.40
April.....	25.95	56.02	28.36	61.85	31.10	67.92
May.....	26.31	56.98	27.86	60.42	31.08	67.88
June	27.09	58.61	27.58	60.10	31.46	68.69
July.....	27.32	59.06	27.36	59.61	31.45	68 75
August....	27.48	59.54	24.93	54.19	30 93	67.34
September	28.05	60.68	25.66	55.24	30.19	65.68
October ..	27.90	60.42	26.77	57.57	29.68	65.05
November	27.93	60.60	26.87	57.93	29.46	64.98
December.	27.45	59.42	26.83	58.01	29.70	65.24
Year.....	26.76	58 26	27.55	59.79	30.67	67.06

The New York prices are per fine ounce; the London quotation is per standard ounce, 925 fine.

Prices of Foreign Coins.

	Bid.	Asked
Mexican dollars.....	$ .47	$ .48½
Peruvian soles and Chilean pesos.....	.42½	.43
Victoria sovereigns.....	4.84	4.87
Twenty francs.....	3.84	3.88
Twenty marks	4.73	4.78
Spanish 25 pesetas.....	4.78	4.84

Other Metals.

Copper.—The week just ended has eclipsed all records of the past few months, the advance having been much more rapid and extensive. We quote the market at the close: 15c. for Lake; 14¾c. for electrolytic copper in cakes, bars or ingots; 14½c. for electrolytic copper in cathodes, with casting copper nominal at 14@14¼c. The brass and copper manufacturers at meetings held recently have advanced prices, and orders of fair dimensions having been placed with them, many were liberal buyers of raw material. This, coupled with the good demand from abroad, has given the market a greater stimulus than we have so far witnessed. Though present prices are very remunerative for the producers, they are no more willing now than they have been for some time past to meet the demand freely, for the reason that they did so at a time when prices were very much lower; and then to such an extent that in some cases they have no more copper to dispose of for some little time to come and others have limited quantities only.

In London the rise was still more pronounced, good standard brands at one time advancing to £64 15s. for spot, which, however, was not fully maintained; the price, on Thursday, receding to £64 5s., where it has since remained, with three months quoted at £64 12s. 6d. The volume of transactions has been simply enormous. Refined kinds have advanced in sympathy, and have now to be quoted: English tough, £65 10s.@£66; best selected, £66@£66 10s.; strong sheets, £72; India sheets, £69; yellow metal, 6@6 1-16d.

Statistics for the first fortnight in January show an improvement of 1,300 tons.

Copper production, as reported by Mr. John Stanton, who acts as statistician for the companies, was as follows for December and the year, stated in long tons (2,240 lbs.) of fine copper:

Production.	December. 1897.	December. 1898.	Year. 1897.	Year. 1898.
U. S. reporting mines..	21,091	16,632	204,206	216,222
U. S. outside sources...	1,200	1,850	11,900	18,059
Total United States..	22,291	18,482	216,106	234,272
Europe reporting mines	7,995	8,436	88,270	84,554
Total.	30,286	26,918	304,376	318,826
Exports, United States	10,582	13,222	128,851	145,115

The United States production fell off a little in December, as compared with last year; but the exports showed a large increase.

Tin has lost none of its buoyancy, so far as the foreign market is concerned; but prices here have not advanced nearly as much as there because they had already—at least for spot tin—been considerably above the figure at which the article could be imported. We close to-day at about 22⅝@22¾c. for spot, with futures more or less unsalable and quoted at about 22⅛@22¼c. The advance for the week on this side is about ½c. per pound as compared with the equivalent of over 1c. on the other side, where prices rose to £102 5s. for spot and £102 17s. 6d. for three months prompt, which are the closing quotations.

Exports of tin from the Straits for the eleven months ending November 30th were, in long tons:

	1896.	1897.	1898.
United States 14,251	17,980	20,074	
Europe 29,333	19,789	20,639	
China and India 5,607	2,991	2,440	
Totals 49,191	40,760	43,153	

The exports in 1898 show some increase over 1897, but were still considerably below those of 1896.

Lead has been in good demand at advancing figures, closing at 4.20c. New York, with the offerings of a rather scant nature. The foreign market rose to £13 11s. 3d. for Spanish, but the improvement was not maintained, prices receding to £13 7s. 6d. for Spanish and £13 10s. for English lead.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is strong but quiet. The nominal value is 4c., and at this figure there is a little trading.

Spelter, too, has scored quite an advance, values having improved considerably and closing at about 5⅝c. New York, and 5.15c. at St. Louis.

The foreign market has remained steady at about £24 15s. for ordinary brands and £25 for specials.

Antimony.—No change. Cookson's, 9¼c.; U. S. Star, Hallett's and Japanese, 8¾@8⅞c.

Nickel continues on unchanged lines, and no alteration in prices can be reported. We quote for ton lots 33@36c. per lb., and for smaller orders 35½@38c. London prices are 14@16d. per lb., according to size and order.

Platinum.—Demand is steady. The metal can be had in large lots at $14.40; for smaller orders it is quoted at $15@$16 per oz. in New York. The London quotation is 58@60s. per oz. Prices are firm.

For chemical ware (crucibles and dishes), best hammered metal, current prices in New York are as follows: In lots of 250 grams or more, 56c. per gram; in lots of 100 grams, 58c. per gram; less than 100 grams, 60c. per gram; unmanufactured platinum will be supplied in small quantities at 2c. less per gram.

Quicksilver.—The New York quotation is unchanged at $42 per flask. The London price is £8 per flask, with £7 19s. named from second hands.

Quicksilver receipts at San Francisco in December were 2,211 flasks; for the year they were 23,156 flasks, an increase of 5,148 over 1897. For the year shipments by water from San Francisco were: British Columbia, 107; Mexico, 4,427; Central America, 1,486; South America, 10; New Zealand, 30; New York, 135; total, 6,196 flasks, an increase of 757 flasks over 1897. Shipments overland from the mines are not yet reported.

The Minor Metals.—Quotations are given below for New York delivery:

Aluminum.	Per lb.		Per lb.
No. 1, 98% ingots	.30@40c.	Bismuth	$1.40
No. 2, 90% ingots	.31@34c.	Phosphorus	.40@65c.
Rolled sheets	.38c. up	Tungsten	70c.
Nickel alloy	.33@39c.	Ferro-tungsten, 60%	60c.

Variations in price depend chiefly on the size of the order.

Imports and Exports of Metals

Port.	Week, Jan. 19. Expts.	Week, Jan. 19. Impts.	Year, 1899. Expts.	Year, 1899. Impts.
***New York.**				
Aluminum.....long tons	.....	.....	7	10
Antimony ore... " "	.....	.....	.....	.....
" regulus.. " "	.....	.....	.....	.....
Chrome ore ..... " "	.....	.....	.....	.....
Copper, fine..... " "	586	408	3,126	557
" wire..... " "	71	.....	100	.....
" matte... " "	.....	225	30	225
" ore..... " "	.....	.....	.....	.....
" sulphate " "	324	.....	498	.....
Ferro-chrome... " "	.....	.....	.....	.....
Ferro-mangan'se " "	.....	.....	.....	.....
Ferro-silicon..... " "	.....	.....	.....	.....
Iron ore ..... " "	.....	.....	.....	.....
" pig, bar, rod " "	161	.....	384	72
" pipe..... " "	538	.....	2,233	.....
" plates ..... " "	.....	.....	.....	.....
" rails (old)... " "	866	.....	893	.....
" other..... " "	23	.....	202	.....
Lead ..... " "	975	897	1,775	1,897
" ore .. .. " "	.....	.....	.....	.....
Manganese ore.. " "	.....	.....	.....	129
§Metals, old .... " "	.....	.....	100	3
Composition... " "	7	.....	325	.....
Nickel .... .. " "	35	.....	155	.....
§Railr'd material " "	385	.....	800	60
Spiegeleisen..... " "	.....	.....	.....	.....
Steel billets, rods " "	33	.....	1,697	389
" rails..... " "	561	.....	5,837	.....
" wire..... " "	440	.....	1,467	.....
" nails..... " "	100	.....	735	.....
" old..... " "	404	.....	404	.....
" not speci'd. " "	109	.....	580	40
Tin... . ..... " "	.....	240	.....	1,165
" dross..... " "	.....	.....	.....	.....
" and black plates boxes	.....	.....	.....	.....
Zinc.....long tons	.....	.....	.....	.....
" dross..... " "	.....	.....	32	.....
" dust or ashes " "	27	.....	71	.....
" ore..... " "	.....	.....	.....	.....
" oxide ..... " "	18	.....	233	15
" skimmings. " "	.....	.....	8	.....
†Baltimore.				
Aluminum.....long tons	.....	.....	.....	.....
Antimony regulus...casks	.....	.....	.....	.....
Brass scrap.....long tons	.....	.....	.....	.....
Chrome ore..... " "	.....	.....	.....	.....
Copper, fine..... " "	.....	.....	.....	.....
" matte ... " "	.....	.....	.....	.....
" sulphate " "	.....	.....	.....	.....
Ferro-manganese " "	.....	.....	.....	.....
Ferro-silicon..... " "	.....	.....	.....	.....
Iron pig, bar, etc. " "	60	.....	60	384
" ore..... " "	.....	.....	.....	5,947
" pipe..... " "	454	.....	454	.....
" other . ..... " "	.....	.....	.....	.....
Lead ..... " "	.....	.....	.....	.....
Machinery..... " "	115	.....	115	.....
Manganese ore... " "	.....	.....	.....	.....
Spiegeleisen ..... " "	.....	.....	.....	25
Steel, billets, etc. " "	845	.....	1,206	48
" wire ..... " "	51	.....	51	100
" rails..... " "	.....	.....	2,000	.....
" nails..... " "	54	.....	54	.....
Tin..... " "	.....	.....	.....	.....
" dross..... " "	.....	.....	.....	.....
" and black plates, boxes	.....	.....	.....	.....
Zinc.....long tons	18	.....	18	.....
" dross..... " "	.....	.....	.....	.....
***Philadelphia.**				
Antimony.. .....casks	.....	.....	.....	.....
Chrome ore.....long tons	.....	.....	.....	.....
Copper ore..... " "	.....	.....	.....	.....
Ferro-manganese " "	.....	.....	.....	.....
Iron, pig..... ... " "	.....	.....	.....	.....
" ore..... " "	.....	.....	.....	.....
" pyrites ..... " "	.....	.....	.....	.....
Manganese ore.. " "	.....	.....	.....	7,800
Steel ..... " "	.....	.....	.....	.....
Tin..... " "	.....	.....	.....	.....
" and black plates, boxes	.....	.....	.....	.....
Zinc ore.....long tons	800	.....	1,050	.....

*New York Metal Exchange returns. †By our Special orrespondent. ‖Not mentioned elsewhere.

MINING STOCKS.

Complete quotations will be found on pages 108, 109 and 110 of mining stocks listed and dealt in at:

Baltimore.	New York.	Mexico.
Boston.	Philadelphia.	Paris.
Butte.	Pittsburg.	Rossland.
Cleveland.	St. Louis.	Shanghai.
Colo. Springs.	Salt Lake.	Toronto.
Denver.	San Francisco.	Valparaiso.
Spokane.	London.	

New York. Jan. 20.

With few exceptions the stocks in this market have ruled quiet. Of the Colorado group Isabella of Cripple Creek has made a sensational gain from last week, in consequence of the report that the lost shoot on the Emma No. 2 has been found by the lessees. Assays of the ore are said to run very high, and from the West comes the announcement that large blocks of the stock have been bought in. In New York the price has risen from 38c. to 71c. within a week, but closes around 65c. The last dividend paid by the company was in June, 1897, amounting to ½c. per share, or $11,250. Of the other Colorado stocks, Leadville Consolidated and Little Chief are in demand around 7c. and 16c. respectively.

In the California section Brunswick Consolidated is bid for at 15c., while holders are asking 18c. The result of the annual meeting is not yet known. For the first two weeks in the present year there were delivered to the mill 450 tons of ore, and the recovery of gold from the plates amounted to 345 oz. There are now being employed 55 men, who receive a daily salary of $169.75.

Homestake of South Dakota will pay another double dividend on January 25th, amounting to 50c. per share. A sale of this stock was made early in the week at $60 per share.

The Comstocks are dormant in the face of coming assessments, and little news from the Pumping Association.

We note an auction sale of $7,600 first mortgage 6% bonds of the Batopilas Mining Company of Mexico at 46, and 620 shares of the stock at $1 per share.

The Consolidation Coal Company of Maryland will pay a dividend of $2 per share on its capital stock on February 1st. The National Lead Company has also declared a dividend of 1% on its common stock, payable March 1st.

Boston. Jan. 19.

(From Our Special Correspondent.)

The high price of copper has furnished a good ground for continuing the boom in copper stocks and the market has been a very strong and active one all through the week. The dividend-payers came in for a rise, and on Wednesday Calumet & Hecla sold for $675; Boston & Montant, $283; Tamarack, $208; Quincy, $157. These are all record prices, but they were better today, when Calumet & Hecla was quoted at $685@$690, while $700 was asked. Tamarack closed at $210; Quincy at $158 and Osceola at $89; while Boston & Montana was steady at $284@$285.

In the leading speculative shares, business was very lively. Butte & Boston closes to-day at $89@$90, Arcadian at $71, Old Dominion at $38, and Isle Royal at $45.

In the new companies speculation is running wild. There is a regular scramble to get into these, and anything with copper in its name is sure of over-subscription, whether there is any copper in the property or not.

A new Michigan copper company brought out here is the Pawnee, which has taken the old Conglomerate property about five miles east of the Central. The Victoria is a company which seems to be finding favor with some people. The list is growing fast, and a lot of money is going into these concerns.

Another new mining property to be placed on the market is the North Cliff, a tract of 1,000 acres near Keneenaw in Houghton County, Mich. Mr. Charles J. Hodge of Houghton has it in charge.

It is hard to keep up with these new incorporations, they come so fast; and quite impossible to criticise them in order.

The Coram crowd are booming the Bingham Copper and Gold Mining Company, which is a Utah property in the Bingham District, not far from the Highland Boy. The last named mine is understood to be a good property, but the Bingham has yet to prove itself.

Little stock is taken in the great copper consolidation dispatches, which are only repetitions of Mr. Lawson's advertisements and contain nothing new.

Boston & Montana stockholders are notified by advertisement that the holders of a large number of shares, believing that their best interest will be served by taking concerted action through an entirely impartial committee, the members of which, both individually and as a committee, are not shareholders in rival mining companies, have asked Augustus P. Loring, Francis Peabody, Jr. and George U. Crocker to serve as a committee to represent them. Any shareholder desirous of joining in this action may do so by signing an agreement and depositing their certificates with the American Loan & Trust Company, which will issue negotiable certificates therefor. It is understood that this movement is started by stockholders opposed to consolidation with any other company.

The gold stocks have been active also, North American Gold Dredging and Santa Ysabel being especially in demand. Nothing has been done in the quicksilver stocks.

Salt Lake City. Jan. 14.

(From Our Special Correspondent.)

The second week of the new year closed with board sales of 400,750 shares, nearly tenfold the business of the corresponding week in 1898, while the quotations range far higher. Perhaps this comparison gives as good an idea of the ruling active conditions of the Utah mining share market as can be put in a few words. There were a few recessions but the advances of the week are the more noteworthy.

Daly West has steadily moved up, closing in good demand, $9.05 bid, $9.47 asked. Mr. Daly has returned from New York and states that the plan to reorganize the company will be carried out as previously announced, and that operations will be resumed early in the spring. Silver King furnished a surprise by quietly increasing the dividend on the 10th from $37,500 to $50,000. Valeo has moved up and down between narrow limits and closed strong. Anchor is attracting less attention and is lower. Ontario holds well above $6.

Geyser-Marion is firmer and higher. The annual meeting was held last week and the old board was re-elected. Mercur rules almost unchanged. The new leaching annex to the mill is ready to go into commission. Northern Light gave another sensation by jumping 20 cents between two calls. Chloride Point dropped to near $1, and almost recovered on the same call. Daisy shows less strength but appears to be in favor. Omaha is neglected.

Centennial-Eureka paid the $15,000 dividend yesterday. Grand Central paid the regular $31,250 dividend on the 10th. Tetro closed 11¼ bid, 12¼ asked. The assessment was practically all paid.

Alice held the annual meeting on Tuesday and the old directorate remains at the helm. The 1898 report will be made public in a few days. Dalton has indulged in another spurt, which is entirely speculative.

A number of the largest traders at this time are new flotations, or old companies revived, mostly held locally, and it is almost impossible to say which are simply temporary and which will become of general interest.

Steps are being taken to incorporate the Exchange and among other improvements it is to be cited that the welfare of investors is more thoroughly safe-guarded than formerly.

San Francisco. Jan. 14.

(From Our Special Correspondent.)

The market has been very quiet all through the week, with only moderate fluctuations and small sales. On the whole prices were weak and at the close the tendency is downwards. It is evident that the Comstock deep-level mining is a failure so far as drawing public attention is concerned. The public continues to keep out of the mining stock market, and it is left to the insiders entirely.

Some quotations noted are: Consolidated California and Virginia, $1.25@$1.30; Sierra Nevada, 72c.; Occidental Consolidated, 30c.; Yellow Jacket, 18c.; Challenge Consolidated, 12c.; Crown Point, 12c.; Hale & Norcross, 9@10c. For Standard Consolidated $1.90 was bid, with no sales.

According to the usual statements required by law, the following companies report having had cash on hand December 31st, 1898: Alpha Consolidated, $27; Alta, $223, with mine expenses partly paid and $1,000 due the bank on company's note; Andes, $19, with liabilities of $467; Belcher, $1,191; Best & Belcher, $4,330; Bullion, $1,734; Caledonia, $4,904, with December expenses unpaid; Consolidated California & Virginia, $23,018; Confidence, $1,992, with December expenses unpaid; Crown Point, $4,979; Consolidated New York, $852; Consolidated Imperial, $1,823; Challenge Consolidated, $666; Exchequer, $251; Gould & Curry, $9,811; Hale & Norcross, $1,458; Julia Consolidated, $30; Mexican, $4,804; Ophir, $4,307; Overman, $82, with a balance of $844 due on the last assessment and a balance of $217 due the treasurer; Potosi, $7,580; Segregated Belcher, $155; Scorpion, $129; Sierra Nevada, $5,149; Standard Consolidated, $73,901 in coin and $6,884 in unsold bullion, with December bills unpaid; Silver Hill, $102, with $1,000 due on company's notes; Syndicate, $1,512; Union Consolidated, $12,670; Utah Consolidated, $564.

The following companies report an indebtedness December 31st: Chollar, $1,779; Savage, $132; Silver King, of Arizona, $1,971; Occidental Consolidated, $157.

The San Francisco Stock and Exchange Board held its regular annual election Monday, January 9th. Emmet P. Barrett was elected president; Archibald J. McDonell, vice-president; Fred W. Hadley, secretary, and George T. Marye, Jr., treasurer. The following committee on membership was elected: Charles E. Paxton, Charles H. Stoutenborough, George Ives, R. F. Morrow, Charles D. Laing, E. Epstein and Howard H. Shinn. The other committees will be appointed later.

London. Jan. 11.

(From Our Special Correspondent.)

In a recent letter I mentioned that Mr. J. Morris Cotton was attempting to float The Canadian, British Columbian & Dawson City Telegraph Company, Limited. This company has a capital of £300,000 in shares, and £225,000 in debentures, but only the latter were offered to the public. The promoter presumably wished the public to suppose that the ordinary shares were already subscribed privately, which I, for one, don't believe. He is, however, beginning to peddle the shares by means of outside brokers' circulars of the usual sort. These circulars are being issued broadcast in Scotland from the office of one "Alexander Black, Stock Broker, Edinburgh." Mr. Black is not a member of any stock exchange, nor is his name in the directory at the address given, or elsewhere. His circulars are couched in the benevolent language usually to be found in circulars offering rubbishing shares. He says that "after great trouble" he has been able to obtain £50,000 of these shares, and as "a special favor" he is now offering them to Scottish investors. He refers to "the overwhelming success of the recent debenture issue," and says that the rush is so great for the ordinary shares that they are worth much more than their par value. But, being a benevolent gentleman, he will sell them at par only. And so on, through the usual farrago of nonsense. It is not likely that the debenture issue was subscribed for to any extent, but I suppose they got sufficient to enable them to make a show of starting, and the business will be ostensibly carried on just as long as they can peddle away their shares. Why the debentures should be called debentures it is hard to see, for there is little or nothing on which to secure them.

The boom in copper continues to bring to light new projects for opening copper mines, but the scarcity of copper propositions that can be opened cheaply and with little delay makes this kind of speculation not very tempting to the promoter and his public. The usual copper propositions met with nowadays require far too much capital for mining development and metallurgical plant to suit the ordinary promoter. However, a new company on the Lyell field has made its appearance this week, being the Mount Lyell Comstock Copper Company, Limited, and it is promoted by the North Mount Lyell Company, which was itself floated in London rather more than a year ago. The property is the most northerly in the field that has been tested to any extent, and sufficient work has been done to show that bodies of pyrites exist. But the purchase price and the terms offered to the public are, as usual in London promotions, quite out of proportion to the value of the mine as at present proved. The capital is £500,000, and the venders take £400,000 in shares as purchase price; £50,000 is offered for subscription to provide working capital, and of this the promoters have already obtained £30,000, so only £20,000 remains for the public to subscribe. Another £50,000 is reserved for future issue as required.

Paris. Jan. 8.

(From Our Special Correspondent.)

The holiday season interfered seriously with business during the week just passed, and there has hardly been any incident worth recording. The mining stock market has been almost entirely neglected for the time being.

Official notice is given that 110,000 bonds of 500 fr. each, bearing 3½% interest, will be offered for public subscription on January 14th. This issue is part of the 200,000,000 fr. loan authorized to build railroads in Indo-China. The issue will be redeemable by drawings in 75 years. The bonds are free of all taxes or other charges, present or future, in Indo-China, and are not subject in France to the stamp transfer or dividend taxes at present levied. They will not be redeemable, except according to the table of redemption, for ten years. The price of issue is 90, or 450 fr. per bond.

The gold and silver movement in France for the eleven months ending November 30th is reported by the Ministry of Commerce as below:

	Imports. Francs.	Exports. Francs.	Excess. Francs.
Gold:			
1898.....	175,400,230	287,495,385	Exp. 112,095,155
1897.....	260,178,308	119,362,059	Imp. 140,816,249
Silver:			
1898.....	174,120,621	163,582,709	Imp. 10,537,912
1897.....	154,923,653	166,695,128	Exp. 11,771,475

Imports of copper and bronze coins, rated at their face or coinage value, were 86,400 fr., against 86,900 fr. in 1897. Exports were 536,400 fr., against 2,839,900 fr. in 1897.

Political matters are a little quieter, but no one knows when a new excitement will break out to upset the market again. Azote.

STOCK QUOTATIONS.

NEW YORK.

NAME OF COMPANY.	Location.	Par val.	Jan. 14. H.	Jan. 14. L.	Jan. 16. H.	Jan. 16. L.	Jan. 17. H.	Jan. 17. L.	Jan. 18. H.	Jan. 18. L.	Jan. 19. H.	Jan. 19. L.	Jan. 20. H.	Jan. 20. L.	Sales.
Adams Con.	Colo.	$10									.10				2,800
Atlanta	Nev.	1	.09				.09		.06		.06				2,300
Alice	Mont.	25	.80	.75	.80		.80	.75	.75		.75				
Alta	Nev.	2	.05		.05		.05		.05		.05				200
Anaconda Gold	Colo.	5			.75		.48		.35		.35				
Andes	Nev.	3									2.00				
Argentum-Jun.	Colo	2					.32		.32		.30				
Belcher	Nev.	3	.12	.10	.12		.12		.15	.12	.15				
Best & Belcher	"	3	.40		.40		.40	.35	.36						
Breece	Colo.	25	.85	.80	.85		.85	.80	.85	.8	.85	.80			100
Brunswick	Cal.	1	.15				.15		.15		.14				
Caledonia	S. D.	100	.50				.50		.5		.5				
Catalpha	Colo.	10					.14				.08				
Challenge	Nev.	3	.1				.0		.12	.10	.15				
Chrysolite	Colo.	50	.13	.12			.12		.12		.12				
Comst'k T.,b'ds	Nev.	100	.04		.04		.04		.04		.04				
do. stocks	"	100	.04		.04		.04		.04	.03	.04				
do. scrip	"	100	.04		.04		.04		.04		.04				
Con. Cal. & Va.	"	2	1.15		1.10		1 20	1.15	1.15		1.15				200
Con Imp	"	1													
Cr & Cr. Creek	Colo.	1	.04		.04		.04		.04		.04				2,000
Crescent	"	10	.08				.08		.08		.14				
Cripple Cr. Con.	"	1	.09				.10		.05		.11	.10			8,500
Crown Point	Nev.	3	.10	.08	.08		.12	.08	.10		.10				
Deadw'd Terra	S. Dak	25	.45	.40	.45	.40	.45	.40	.45		.45				
Enterprise	Colo.	1	.35		.30		.30		.30		.30				
Eureka Con.	Nev.	20	.35				.35		.35		.35				
Father de Smet	S. Dak	100	.12	.10	.12	.10	.12	.10	.12	.10	.10				
Golden Fleece	Colo.	1	.04				.30		.25		.32				
Gold & Globe	"	1	.03						.02						
Gould & Curry	Nev.	3	.25		.25	.22	.25		.2		.24				
Hale&Norcross	"	3	.07				.08		.09						
Homestake	S. Dak	100			6 00										25
Horn Silver	Utah.	25	1.15		1 15				1 15		1 20				100
Iron Silver	Colo.	20	.75		.80				.82	.75	.85	.75			1,30
Isabella	"	1					.71		.65						100
Julia Con.	Nev.	1	.09						.09						
King & Pemb.	Ont.	10	.20	.19	.16	.14	.25		.15	.13	.15	.13			2,000
Lacrosse	Colo.	10	.16	.14	.14	.10	.14	.10	.14	.09	.12	.09			
Leadville Con.	"	10	.1	.09	.11	.09	.1	.07	.1	.07					
Little Chief	"	50	.23	.17	.2	.17	.21	.17	.21	.16	.21	.16			
Mexican	Nev.	3	.25		.30	.25	.32		.32		.30				400
Mollie Gibson	Colo	5					.23		.24		.24				3,0
Mt. Rosa	"	1	.17		.21		.19		.19		.2				1,200
Moulton	Mont.	25	.20				.20		.20		.15				
Occidental	Nev.	3	.30		.50		.30								
Ontario	Utah.	100	5 00		5.00		5.00		5 25		5.00				400
Ophir	Nev.	3	.45		.48	.40	.50		.55		.45				
Pharmacist	Colo	1	.05				.06		.04		.04				1 000
Phoenix	Ariz.	1	.08		.08		.08	.08	.08		.08				
Plymouth Con.	Cal.	10	.10	.07	.10	.07	.10	.07	.10		.10				
Portland	Colo.	1	1.40						1 40		1 40				
Potosi	Nev.	3	.12	.10	.12	.10	.12	.10	.10		.1				
Quicksilver	Cal.	100	1 50		1 50		1 40		1 50				2.50		400
do. pref	"	100	3 00		5 00		5 00		4 50				10.00		100
Savage	Nev.	2½	.07		.07		.10		.10	.08	.10				
Sierra Nevada	Nev.	3	.60		.75		.60		.65		.65				100
Small Hopes	Colo.	20	1.25		1.25		1.3		1 40		1.40				200
Specimen	"	1							.02						
Standard Con.	Cal.	100	2.05		2 0		2.05	2.00	2.05	2.0	2 05				300
Syndicate	"	10					.18								1,200
Union	Colo.	1	.17				.18		.19		.18				
Union Con.	Nev.	2½	.30		.30		.30		.2		.25				
Utah Con.	"	3	.1		.14		.11		.10		.10				1,200
Work	Colo.	1	.15				.16		.14		.16				
Yellow Jacket	Nev.	3							.18						500

COAL AND INDUSTRIAL STOCKS.

American Coal	Md.	$25	140	125			140	125	130	120					
Am. S & W Co		100	42⅝	41⅝	45⅛	43¾	45⅝	44⅜	46⅜	45⅜	51⅞	49⅜	54		31,185
" pf'r		100	110⅜	109	112⅝	109⅜	113⅜		113⅜		117	115	124⅜		5,305
Central of N. J.	N. J.	100	104	102⅜	.03	.02	102⅜	101¼	103⅜	102	103⅜	102	102⅝		6,770
Col. C. & I. Dev.	Colo.	100	1⅜				1⅜								100
Col. Fuel & I.		100	34	33	35⅝	32⅜	35	34¼	34¾	34½	35¼	34⅝	34½		16,377
Col. & H.C.& I.	Ohio.	100	7⅞	7	8		8	6⅝		6	7				100
Con. Coal	Md.	100							50						40
*Del. & Hud.	N. Y.	100	112⅜	112	113	112½	112		112⅜	112¾	113⅜	111⅜	111⅛		4,528
Ed'n E.L.of N.Y	"	100		192	191			192	190		197⅝	192⅜	192		1,414
*Federal Steel		100	53	52⅜	53⅜	53	53⅛	52⅜	54⅛	53⅜	54⅜	54	54⅛		396,44
" pf		100	85⅜	83¾	84¾	83¾	84¼	83	84	83	85	84	85⅜		45,663
Maryland C.pf.	Md.	100	5	50	55	50	55	50	55	50					10
National Lead	N. Y.	100	39	37⅜	39¾	37⅜	38¾	38	38¾	37⅜	38⅜	37⅜	39¼		37,109
New Central C.	Md.	100	40		42	40	40		42	40					600
N. Y., Ont. & W.	N. Y.	100	20¾	19¾	20¾	20	19¾	19⅜	19¾	19¼	20	19⅜	19⅝		22,557
Penns'lv'nia C.	Pa.	100		350		3.5		350		350		350			
Phila. & Read	"	100	25¾	25¼	23⅜	2.5⅛	23⅜	22¾	23	22¾	23¾	22⅝			31,563
" " 1st pf.	"	100	58⅜	57	57⅞	56	57⅝	55⅞	57⅝	55⅝	58⅛	56¾			30,91
Standard Oil	"	100	448	446	447	446	448	447	447	446	448½	447			
Tenn.C.,I.&R.R.	Ala.	100	36⅛	36	37¾	36	39¼	37	40⅜	38¼	41⅝	40⅛	39½		126,67

PHILADELPHIA, PA.

NAME OF COMPANY.	L'cation.	Par Val.	Jan. 13. H.	Jan. 13. L.	Jan. 14. H.	Jan. 14. L.	Jan. 16. H.	Jan. 16. L.	Jan. 17. H.	Jan. 17. L.	Jan. 18. H.	Jan. 18. L.	Jan. 19. H.	Jan. 19. L.	Sales
Cambria Iron	Pa.	$50	44 75	43 00	45 5	45 00	45.25	44 25	45.00	44 75	44 88	44 63	45 13	45 00	5,208
" r. Scrip	"	50	86 00										89.00		5,100
Cambria Steel	"	50	13 00	12.13	13 50	13.13	14 00	13 50	15.00	13 75	15.00	14 5	17 00	15.00	164,20
Cons'dtw. pref.	I. T.	50	43 25	44 00	44.00	43 75	44.00		44.00		44.00	43 88	44 88	44 50	4,453
Choc. Tr. ctf	"	50	30.13	30 00	30 00		30.50	30.00	30 38	30.00	30 25	30 0	30 26		5,748
Hunt & Br.pr'f	Pa.	50									42 50	40.00			96
Lehigh Val	"	50	26 88	25 38	27 0	26 5	27 25	26.00	26.75	26 0	26 50	26 00	26 63	26 13	18,118
Penna. R. R	"	50	65 13	64 75	65 13	64.75	67 00	65 00	67 75	66.38	67 13	66.50	67 25	66 63	13,292
Penna. Steel	"	100							22.50	21.00			22.50	22 00	684
" pr'f	"	100													
United Gas I.	"	50	138	136⅛	138¼	137	138	137⅜	138	136	138	136	140¼	139⅛	20,597
Welsb. of Can.	Can.	5							2.00				2.00		450
Welsb.Co.pref	"	100							62 50						50
Welsb Light	"	160	40.00				41.00	39 50	38.50	38.00	38.00	37.50	38.00	37.75	1,043

PITTSBURQ, PA.

Jan 18.

NAME OF COMPANY.	Location.	Par val	Bid.	Ask.	NAME OF COMPANY.	Location.	Par val	Bid.	Ask.
Allegheny	Pa.	$100			N.Y. & C. Gas	Pa.	$50		
Carborundum	"	100			Peoples' Natural Gas	"	50		
Chartiers Valley	"	100			Pilgrim G.	"	25		18½
Enterprise Mining	Colo.	5			Pennsylvania Gas	"	50	11	
Lustre Mining	Mex.	10		10	Philadelphia Gas	"	50	39½	39⅝
Mansfield Coal	Pa.	50			Silverton Mining	Colo.	10		
Manufact Gas	"	50			Wheeling Gas	W.V.	50		

BALTIMORE, MD.‡

Jan. 19.

NAME OF COMPANY.	Location.	Par value	Bid.	Ask	NAME OF COMPANY.	Location.	Par value.	Bid.	Ask
Atlantic Coal	Md.	$10			Howard C.&C	Md.	$5		
Big Vein Coal	"	10			Newburg Orrel C.	"	25		
Consolidation Coal	"	100	52	55	Silver Valley	N. C.	5		
George's Creek Coal	"	100	110						

ST. LOUIS, MO.

Jan. 18.

NAME OF COMPANY.	Location.	Par value.	Latest Bid.	Latest Ask.	Sales.	NAME OF COMPANY.	Location.	Par value.	Latest Bid.	Latest Ask	Sales.
Am. Gold	Colo.	$10				Granite B.	Mont.	$10	$1.20	$1.37½	300
Am Nettie	Colo.	10	$0.92½	$0 97½		Hope St. L.	Mont.	10			
Central L	Mo.	100	88.00	96.00		St. Joe, L	Mo.	10	13.00	13 50	
Doe Run L.	Mo.	100				Sm. Hopes	Colo	20	1 35		

BOSTON, MASS.†

NAME OF COMPANY.	Par val.	No. of shares.	Jan. 13. H.	Jan. 13. L.	Jan. 14. H.	Jan. 14. L.	Jan. 16. H.	Jan. 16. L.	Jan. 17. H.	Jan. 17. L.	Jan. 18. H.	Jan. 18. L.	Jan. 19. H.	Jan. 19. L.	Sales.
Adven'u'e.Cons	$25	100,000	10.00	9.50	10 00	9 75	10.25	9.75	10.00	9 88			10.00	9 75	2,700
Aetna. Cons. f.	5	100,000													
Allouez, c	25	90,000	6 88	6 75	7 00	6 88	7 00		7 00				7 00	6 75	1,287
Arcadian	25	100,000	68.00	64.25	69 50	67.50	69.00	68 00	69.00	68 25			73.00	70 00	7,513
Arnold, c	25	40,000	9 75		10 0		10.0	9 50	10.00	8 88			9.51		5,440
Ashbed, c	25	20,000	2.00				2.00						1 75	1 50	205
Atlantic, c	25	40,000			33 00		34 50	33 5	33.50	33 00			35 00	33 50	700
Baltic, c	25	100,000	32.00	30 50	32 00	31.00	31 75	31 25	32 00	31 50			32 00	31 50	5,160
Bonanza, g	10	300,000	1.38	1.25			1 38	1 25	1 25				1 38		4,8 0
Boston & C C. g	2	200,000							.32						5 0
Bost.&Mont.gsc	25	150,000	278¾	270	279	277	278		279	276			287	2 3	1,013
Breece, f	25	200,000							1.00				1.00		800
Butte & Bost., c	10	200,000	84 00	77 00	87 00	85.00	85 00	84.00	87.50	84.00			91.00	87 00	13,137
Cal. & Hecla, c	25	100,000	6 0				650	645	650				695	668	4,7
Catalpa, s	10	300,000													
Centennial, s.	25	80,000	34.50	30.75	35 50	32 00	35.00	33 25	34 00	33.50			35	3 34	0 33 181
Cochiti	10	150,000	10.00	9.75	10.00	10.00	10 00	9.88	9 75	9.50			10 0	9 50	5,195
Dominion Coal	100	150,000	35.13	34.63	34 88	33.50	36.38	34 0	34.75	34 50			34 25	33.75	1,650
do. pref	100	30,000			115		114¾		114¾						50
Dunkin Mg	25	200,000													
Franklin, c	25	40,000	21.50	21.00	22 75	21.50	22.50	21 50	22.00				22 75	22 00	3,471
Gold Coin	5	200,000													
Humboldt, c	25	40,000	3 00				3 0	2.75					2 75		270
L. Royale Con.c.	25	100,000	42.00	39.50	43 75	42 5	45 00	44.00	44 50	44.00			45 50	45.00	6,935
Lake Sup., i	25	84,000													
Merced	25	100,000											8.00		300
Mohawk	25	100,000	22 00		22 00	21 00	22 00		22.00	21.75			22 50	22.00	2,328
Napa, q	7	100,000													
New Idria, q.	5	100,000													
N.A.Gold Dre'g	10	100,000	23.00		23,50		24 00	23 00							625
Old Colony	25	100,000	15.50	15.25	16 00	15.25	16 75	16.00	17.50	16.38			18 50	18.00	17,510
Old Dominion,c	25	150,000	37.00	35.25	36 75	36.25	37 50	36 25	38 38	37.50			38 50	37.50	13,925
Osceola, c	25	100,000	81.50	80.00	84.00	83 00	84 25	83.00	84.00				90 00	87 0	5,997
Parrot, s c	10	230,000	37.00		38 00	37 50	38 50	38.00	38.50				39.00	38 50	900
Pioneer, g	10	100,000	6.00		6 25	6.00	6 00		6.00				6 00		1,800
Quincy, c	25	100,000	147	146	146		149¾	149¾	149				159	155	816
San. Isabel, g.	5	100,000	13.25	12.75	13 50	13 00	14.00	13 00	14.00	13.50			13.5	13 25	7,970
Tamarack, c	25	60,000	196		199	196¾	200	199	200	198			210	207	1,300
Tecumseh, c	25	40,000	7 00	6 88	7 00		7.25	7 00	7 00				7 00		2,550
Utah Cons,g	5	300,00	24.50		24 50		25 00	24 50	24.50	23.63			25 00	24 00	2,650
Victor	5	200,000					4.50								95
Washington Mg	25	40,000					1.00		1 00				2.00	1 75	4,300
Winona	25	100,000	5.25	4 5	15 00		1 5	14.50	5 00	4 50			6 7	4 50	2,240
Wolverine, c	25	60,000	37 50	36.50	37 5		38 00	37.25	38.00	37.75			39 75	38.00	3,940

† Official quotations Boston Stock Exchange. Total shares sold, 16,742

CLEVELAND, O.

Jan. 17.

NAME OF CO.	Iron Range	Par Val.	Jan. 17. Bid.	Jan. 17. Ask.	NAME OF CO.	Iron Range	Par Val.	Jan. 17. Bid.	Jan. 17. Ask.
Aurora	Gogebic	$25		$4	Jackson	Marquette	$25		
Champion		25		25	Lake Superior		25	$28	$30
Chandler	Vermillion	25	$42½	45	Minnesota	Verm. & Mes	100	91	92
Cleve'd-Cliffs	Marquette	100	50	52	Pitts & L'ke Ang	Marquette	25	110	125
Fed. Steel Co.		100	29¾	30	Republic	"	25	11¾	12¾

BUTTE, MONT.*

Jan. 9.

NAME OF COMPANY.	Location.	Par Val	Quotations. Bid.	Quotations. Ask.	NAME OF COMPANY.	Location.	Par Val	Quot. ns. Bid.	Quot. ns. Ask.
Alice, g	Mont.	$25	$0 70	$0.75	Lone Pine Con., g	Wash	$1		$ 2
American Dev. & M.	"	5	.10	.25	Montana Ore Purcha'g	Mont.	25		150 00
Anaconda, g	"	2		30.00	Morning Glory, g	Wash	1 0		2
Howe (Basin)	"		.75	1.00	Mountain Lyon			0.01	
Black Tail, g	Wash			2	New Southern Cross	Mont	$0.05		2
Con. Granite-Bimetallic	Mont.		1.3	1.40	Number Six, g	Wash	0.10		1
Con. Tiger-Poorman	Idaho	1	.40	.43	Rebate, g	"	1		2
Gold Mountain (Ruby)	Mont.		.30	.50	Republic Gold	"	1		3 00
Iron Mountain, g	"		.10	.15	San Poil, g	"	1		2
Jim Blaine, g	Wash	1		.42	Tom T. umb. g	"	1		2

* Specially reported by the Hewett-Sisley Company.

COLORADO SPRINGS, COLO.‡

NAME OF COMPANY.	Par val	Jan. 9. B.	Jan. 9. A.	Jan. 10. B.	Jan. 10. A.	Jan. 11. B.	Jan. 11. A.	Jan. 12. B.	Jan. 12. A.	Jan. 13. B.	Jan. 13. A.	Jan. 14. B.	Jan. 14. A.	Sales.
Alamo	1		05¾		.05¾									2 000
Anaconda	1	.37½	.38	.52	.53	.51½	52¾	.52	53		.53¾	54½		5 50
Arg'ntum J	1				39¾	.39	40		38	33¾	33¾	33½	.39	13 40
Banner	1													
Battle Mtn.	1													
Bob Lee	1													
Columbine	1													
Cr. & C. C	1													
C. C. Con	1	.08	.08¾	.08¾	.09		.08¾					.08½	.08¾	15,500
Crocus	1	.04		.04½					.04			.04¼		17,000
Currency	1	.04¾		.05			.05½	.04	.04¾		.04		.04	8,150
Des Moines	1													
ElktonCon	1	.73	.74¾	.72	.73½	.70¾	.72			.71¼	.71¾	.71	.73¼	26,900
El Paso G.	1				.09¾						.09¾	.09¼		9,500
Fanny R.	1													
Favorite	1	.05¾	.05¾	.05¾	.05¾	.05¾	.05¾	.05¾	.05	.05¾	.05¾	.05¼	.05¾	97,000
Findley	1		.17		.16¾	.16¾				.16¾		.16¼		21,500
Franklin	1													
Gold & Gl.	1													
Golden Fl.	1									.30	.32¾		.31	100
Hayden G.	1			.007	.00¾									15,000
Independ'e	1													
Ing. Con.	1	.07¾	.07¾		.07¾				.07¾			.07¾	.07¾	17,000
Isabella	1	.41¾		.56	.63¾	.60	.68	.63	.64	.68	.75	.78	.84	434,000
Jack Pot	1	.39¾	.40	.39	.40		.39	.39¾	.42¾	.43¾	.43	.43	.45	107,500
Lexington	1				.07									2,000
Ma'net R.	1		.01¾		.01¾		.01¾				.01¾	.01¾		21,000
Marion	1													
Matoa	1				.29	.25¾	.30		.32¾			.34½		9,500
Mobile	1				.03¾		.03¾		.03¾		.03¾			25,000
Mollie Gib.	1				.23½		.24		.25¾			.25¾	.26	3,400
Moon-A'c'r	1			1 22	1.25	1 25	1.26	1.24	1 26	1 24	1.25	1.25	1.29	14,000
Mt. Rosa	1													
New Haven	1				.02									1,000
Oriole	1						.01¾							500
Pharmacist	1													
Pilgrim	1											.04		1,000
Pinnacle	1				.06¾		.06¾	.15¾	.07¾	.07¾	.09	.09	.11	292,500
Portland	1	1.47½	1.48	1.48	1 50	1.51	1 54	1.57	1.54¾	1.47¾	1.57	.57		35,000
Prince Alb.	1								.02	.02				5,000
Princess	1				.02¾						.02¾		.07	52,500
Specimen	1	.06	.06¾	.06¾	.06¾		.07			.07		.07	.07¼	
Theresa	1													
Truchyte	1		.04¾	.04¾	.04¾	.04¾	.04¾		.04¾	.04¼	.04¾	.04¼	.04¾	133,000
Union	1		.19¾	19¼	.20	19¾	.20	.20½	.21¼	.21¼	.22¾	.22	.23¼	143,750
Work	1	.16	.16½	.16	.16¾	.15¾	.16	.15¾	.16¼	.17¾	.18	.16¾	.17¾	335,500

‡ Official quotations Colo. Springs Mining Stock Exchange. Sales: Listed stocks, 1,977,436; unlisted, 1,366,138; total, 3,333,588 shares.

By Telegraph.

NAME OF COMPANY.	Par Val	Jan. 13. B.	Jan. 13. A	Jan. 14. B	Jan. 14. A	Jan. 16. B	Jan. 16. A	Jan. 17. B.	Jan. 17. A.	Jan. 18. B.	Jan. 18. A.	Jan. 19. B.	Jan. 19. A.
Alamo	$1	05	.05¾	.05¾	.05¾	05	.05¾	.05¾	.05¾	05	.05¾	05	.05¾
Anchoria-Leland	5	85	88	92	.97	96	.98	95	98	94	98	98	32¾
ElktonCon	1	.71	.71¾	.72¾	.73¼	.72¾	73	.70	71	.70¾	71	.70	.71
Gold Coin, Vict	2	1.58	1.65	1 58	1 70	1.60	1.70	1.60	1 65	1 61	1 65	1 63	1.67
Golden Fleece	1	31	32¾	.31	31¾	33	35	33	35	32	34	32	1.35
Moon-Anchor	1	1.24	1 24½	1 26¾	1 28	1 33¾	1.32	1 31	1 33½	1 31	1 34	1.34	1.35
Mt. Rosa	1	19¾	.20	.20¾	.21	.21	.23	.20	.23	20¾	23	20¾	.24
Portland	1	1 55½	1.56	1 58¾	1.59¾	1.59¾	1.6	1 61	1 6	60	1 61	1 60	1.62

STOCK QUOTATIONS.

DENVER, COLO.‡

NAME OF COMPANY.	Par val.	Jan. 9. B.	Jan. 9. A.	Jan. 10 B	Jan. 10 A	Jan. 11. B	Jan. 11. A.	Jan. 12 B	Jan. 12 A.	Jan. 13 B.	Jan. 13 A.	Jan. 14 B.	Jan. 14 A.	Sales.
Mines:														
Anac'da G.	$5	.52	.55	.51	.54	.51½	.53	.52¼	.54	.53	.54	.51	....	5,000
Arz. J.	1	.38	.39½	.38	.40	.38	.40	.37½	.42½	.38	.45	....	.42	2,500
Asp.-DeepM	1	.01¾	....	.01¾	....	.01¾	....	.01¾	....	.01¾	....	....	....	....
Bankers	1	.07½	.07¾	.07½	.07¾	.07¾	.08¼	.07½	.08¼	.07¾	.08½	.07¾	.08	3,000
Big Six	1	....	....	.04¾	....	....	....	.08	....	.10	....	.10¾	....	1,000
C. C. Con.	1	.08¾	....	.08¾	.09¾	.08¾	.09¾	.08¼	.08¾	.08	.08¾	.08¾	.09¾	7,000
Elkton Con.	1	.73	.76	.74	.75	.71	....	.67	.73	.71	....	.70	....	....
El Paso, G.	1	....	....	....	....	.09	.09¼	....	....	.09¾	....	....	....	1,000
Enterprise	1	....	....	....	....	....	....	....	....	....	....	.15¾	....	....
Fanny R.	1	....	....	....	.40	....	....	....	....	....	.40	.35	.36	1,000
Garf. Con.	1	.15¾	.15¾	.15	.15¾	.14¾	.16	....	.15¾	....	....	.14	.15¾	....
Gold Eagle	1	.34	....	.34	.35	.33	.34	.32¾	.35	....	....	....	....	1,500
Gold Fleece	1	.30	.40	.31	....	.31	.40	....	....	.31	.40	.31¾	....	1,000
Gold Coin.	1	1.50	1.65	....	....	1 54¾	....	1 60	1 65	1 62½	1.67	....	1.67	1,000
Independ'nce	1	.50	.51	.51	.52	.52	.53	.57	.57¾	.56¾	....	.55	....	11,300
Iron Clad.	1	.02⅝	.03	.02¾	.03	.02¾	.03	.02¾	....	.02¾	....	.02¾	.03	1,000
Isabella.	1	.52	.54	.57½	.59	.64	....	.63	.64	.71½	.72½	.79½	.82½	46,100
Jack Pot	1	.38¾	.40	....	....	.39	....	.41	.43¾	.44	.46¾	.44¾	.45¾	9,784
Jefferson.	1	.04	....	....	....	....	....	....	....	....	....	.07¾	....	700
Keystone.	1	....	....	.06¾	....	.06¾	....	....	....	.06¾	....	.07¾	.07¾	2,000
Matoa.	1	.29	.30	.28	.30½	.29	....	....	....	.29	....	.32	....	250
Mollie Gib.	5	....	.25	.21¾	.25	.23	.25	.24	.26	.24	.26	.26	.30	5 000
NewZealnd	1	.17¾	.19¾	.16	.19	.16	.19	....	.16¾	.16	.17¾	.17¾	.18	3,000
Nugget	1	....	....	.11	.13	....	....	....	....	....	....	....	....	1,000
Ophir	1	.15	....	.17	.19	....	....	.15	....	....	....	.16	....	....
Pharmacist	1	....	.04¾	....	....	.03¾	.04	.03¾	....	.04¼	.04¾	.04¾	.05¾	1,000
Portland.	1	1 42	....	1 48	....	1.45	1.55	1 55¾	1 56	1.56	....	....	1 56	1 57	....
Sacram'nto	1	....	.04¾	.04¾	.04¾	.04¾	.05	....	.05¼	....	....	....	.04¾	.05¼	2,000
Specimen.	1	....	....	....	....	....	....	....	.07¾	....	....	....	....	....	....
Union Gold	1	.19¼	.20¾	.19¾	.21¾	.20¼	.21	.20¼	.22	.21¾	.22¼	.22¾	.23¾	2,500
Va. M.	1	.13	....	.03	.03¾	.03¾	....	.13	.03	.03	.03¾	....	....	....	....
Work.	1	.15¾	.16¼	.15¾	.16¼	.15¾	.15¾	.16	.16¼	.17¾	.19	.16¾	.17¾	....	....
Prosp'cts:															
Ben Hur.	1	....	....	....	....	.03¾	.04¾	.03¾	....	.03¾	....	.04	.04¾	1,000
Findl y.	1	.16¾	....	....	....	.17	.17¾	....	....	.16	.17¾	....	....	1,000
Gilpin Four	1	.05	.06	....	....	.05	....	....	....	....	....	....	....	22,000
Gregory Lag	1	....	....	....	....	.05	.05¼	.05	.008	....	....	....	....	....	17,000
New Haven	1	....	....	.01¾	.02¾	.02	.02¾	....	.07¾	....	....	....	....	....	1,000
Old Gold.	1	.007	.01¾	.07	.01¾	.06¾	.07¼	.09¼	.007	.006	.006¾	.006¾	....	....	3,000
Pine Creek.	1	.005¾	.00¾	.01 5¼	.006¾	.006	.006¾	.05¼	.01 6¼	.005¼	....	.005¾	.006¾	....	1,000
Reno.	1	.02	.02¼	.02	.02¾	.01¾	....	.01¾	.02¾	.01¾	.02¾	....	....	....	7,000
Tamarack.	1	.09	.01	.09	.09¾	.08¾	....	.09	....	....	....	.008	....	....	1,000
Wh.of Fort.	1	.003	....	....	....	....	....	.003	....	....	....	....	....	....	....

‡Official Quotations Denver Stock Exchange. Sales; Mines, 61,134 shares; Prospects, 102,000 shares; grand total, 166,134 shares.

SAN FRANCISCO, CAL.†

NAME OF COMPANY.	Location.	Par. value.	Jan. 13.	Jan. 14.	Jan. 16.	Jan. 17	Jan. 18	Jan. 19.
Alpha Con.	Nev.	1.00	.....	.....	.....	.....	.....	.02
Alta.	"	2.00	.... ..	.....	.....	.02	.04	.04
Andes.	"	3 00	.....	.05	.05	.06	.05	.4
Belcher.	"	3 00	.....	.15	15	16	16	.16
Best & Belcher.	"	3 00	.....	.38	.38	40	3	36
Bullion.	"	1 00	.....	.02	.02	.02	.02	.02
Caledonia.	"	3.00	.....	.21	.21	.21	.20	.20
Challenge Con.	"	3.00	.....	1	11	12	.11	.11
Chollar.	"	3.00	.....	13	13	.13	.11	11
Confidence.	"	5.00	.....	.....	.....	.55	.55	.55
Con. California & Virginia.	"	2 50	.....	1.25	1.25	1 30	1.30	1 25
Cons. Imperial.	"	1 00	.....	.....	.....	.....	.....	.....
Cons. New York.	"	1.00	.....	.13	.....	.....	.....	.....
Crown Point.	"	3.00	.....	.10	.10	.13	10	.10
Exchequer.	"	1.00	.....	.....	.....	.....	.....	.....
Gould & Curry.	"	3.00	.....	25	25	.27	25	.25
Hale & Norcross.	"	3.00	.....	.09	.09	.09	.09	.08
Julia Con.	"	1.00	.....	.....	.....	.....	.....	.....
Justice.	"	2.00	.....	.14	.14	.14	10	.9
Kentuck Con.	"	1.00	.....	.....	.....	.08	.....	.08
Mexican.	"	3.00	.....	.33	33	.31	.31	.31
Occidental Con.	"	3.00	.....	.32	30	30	.28	26
Ophir.	"	3.00	.....	.50	5)	.52	.50	49
Overman.	"	2.00	.....	.05	.05	.05	.05	.5
Potosi.	"	3.00	.....	.11	.11	14	.14	.14
Savage.	"	2 50	.....	08	.8	10	.....	.8
Scorpion	"	1.00	.....	.....	.....	.....	.....	.....
Sierra Nevada.	"	3.00	.....	.68	.68	.70	.63	63
Silver Hill.	"	1 00	.....	.....	.....	.....	.....	.....
Standard.	Cal.	100	.....	1.95	1 95	1.90	1.95	1.95
Union Con.	Nev.	2 50	.....	32	32	32	30	30
Utah Con.	"	1 00	.....	10	10	11	10	.09
Yellow Jacket.	"	3.00	.....	.16	.16	.14	.14	11

Official telegraphic quotations, San Francisco Stock Exchange.

ROSSLAND, BRITISH COLUMBIA.*

Jan. 5.

NAME OF COMPANY.	No. of shares.	Par value	Selling price.	NAME OF COMPANY.	No. of shares.	Par value	Selling price.
Brandon & Gold. Cr.	1,500,000	$1	$0 25	Lerwick.	500,000	$1	....
Brit. Amer. Corp'at'n	7,500,000	5	4 00	Lily May.	1,000,000	1	$0.15
Brit Col. Corporation	1,500,000	2½	.....	Lon.&Van.Fin.Dev.Co	500,000	5	....
Canadian Gold Fields	10,000,000	0 10	.10	London B. C. Gold F.	250,000	5	8.0
Cariboo.	1,500,000	1	1 45	Monte Cristo	1,000,000	1	.....
Commander.	500,000	1	.....	New Gold Fields, B.C.	250,000	1	5 00
Deer Park.	1,000,000	1	.....	Novelty.	1,000,000	1	05
Dundee.	1,000,000	1	.40	Queen Bess Prop.	120,000	5	.....
Evening Star.	1,000,000	1	.....	Rambler Cariboo.	1,000,000	1	45
Fern	200,000	¼	.85	Reco.	1,200,000	1	1 75
Gold Fields of B.C.	3,000,000	3½	4.50	Red Mt.View	1,000,000	1	.....
Half Mines.	250,000	5	.....	St. Elmo.	1,000,000	1	.....
Hattie Brown.	1,000,000	1	.....	St. Paul.	1,000 000	1	.....
Homestake.	1,000,000	1	.06	Sarah Lee	1,000,000	1	.25
Iron Colt.	1,000,000	1	.....	Silver Queen	1,500,000	1	15
Iron Horse.	1,000,000	1	.....	Slocan Star.	500,000	1	.....
Iron Mask.	500,000	1	.....	Vic Tr. MinesDev. Co.	25,000	5	05
Josie	700,000	1	.....	Virginia	500,000	1	.....
Jumbo.	500,000	1	.....	War Eagle Con.	2,000,000	1	3 15
Kenneth.	1,000,000	1	.25	Waverly Mines.	100,000	5	...
Keystone.	1,500,000	1	.25	White Bear.	2,000,000	1	10
KootenayGold Fields	20,000		.....	Wild Horse.	400 000	1	....

* From Our Special Correspondent.

VALPARAISO, CHILE.*

Dec. 3.

NAME OF COMPANY.	Location.	Capital paid.	Sh.Val. paid up.	Last Div'n'd. Amt.	Last Div'n'd. Date.	Prices. Bid.	Prices. Asked.	Prices. Last sa t
Arturo Prat, silver.	Chile	$3,300,000	$100	4 p. c.	1897	17	18½	18
Caracoles, silver	" "	315,000	100	10 "	1894	....	....	....
Huantajaya (mine) silver	" "	1,000,000	100	13 "	1894	....	....	....
Huanchaca, silver.	Bolivia,	8,000,000	25	4 "	1895	26	28	30
Oruro, silver.	Chile.	800,000	200	.....	.....	310	320	309
Todos Santos, silver.	" "	2,000,000	100	1 "	1895	6	10	8
Agua Santa nitrate.	" "	3,000,000	50	5 "	1898	160	162	163
Antofagasta, nitrate.	" "	2,000,000	200	2 "	1898	138	140	137
Soc. Internacional, nitrate	" "	930,000	60	.....	.....	....	....	....
Union, nitrate.	" "	8,000,000	200	.....	.....	50	52	5

* Special report of Jackson Bros. Values are in Chilean pesos or dollars.

SALT LAKE CITY, UTAH.*

Jan. 14

Stocks.†	No of shares	Par val.	Bid.	Asked.	Stocks.†	No of shares	Par val.	Bid.	Asked
Ajax.	300,000	$10	$1.30	$1.50	Homestake.	400,000	$1	$0.08¾	$0.09¼
Alice.	400,000	25	.72½	1 20	Horn Silver.	400,000	25	1.18	1 40
Anchor.	150,000	10	.50	1.10	Little Pittsburg	400,000	5	12⅝	13⅛
Buckeye.	500,000	1	.05⅜	.05⅝	Lower Mammoth	150,000	1	.64	65
Bullion-Beck & Ch.	100,000	10	4.00	5.75	Mammoth	400,000	5	1.90	2.02½
Centennial Eureka	30,000	50	3 25	45.00	Mercur.	200,000	25	7 55	7 75
Chloride Point.	500,000	1	1 05	.....	Northern Light.	400,000	5	76	77½
Daisy.	500,000	3	.54	.55	Omaha.	300,000	2	.44	55
Dalton.	500,000	5	.03¾	.03¾	Ontario.	150,000	100	6.00	6 75
Dalton & Lark.	2,500,000	1	0 0¾	.09	Richmond-An.	500,000	1	.06¾	.08
Daly.	150,000	20	1.01	1.10	Sacramento	1,000,000	5	49¾	50
Daly West.	75,000	20	9 05	9 47½	Silver King.	150,000	20	33 00	33.87½
Dexter.	300,000	5	3.17½	3 35	Star Consolidat'd	500,000	1	1.10	1.20
Eagle.	150,000	1	.10	.13	Sunbeam.	250,000	1	.20	.20¾
Eagle & Blue Bell.	250,000	1	1 80	2.05	Sunshine.	250,000	10	.52	54
Emerald	300,000	1	12¾	.13¼	Swansea	100,000	5	3 17½	3 30
Four Aces.	250,000	1	.56¾	.57¼	South Swansea.	150,000	1	1 20	1.22½
Galena	100,000	10	.53	55	Tetro.	300,000	1	11¼	.12¼
Geyser-Marion.	300,000	5	.88¾	90	Utah.	100,000	1	.77½	97½
Grand Central	250,000	1	8 00	8.40	Valeo	200,000	10	1.30	1 45

*From Our Special Correspondent. † Utah companies. § Mines in Vanderbilt, Cal. Mines in Tuscarora, Nev.

SPOKANE WASH.§

Jan. 19.

Name.	No. of shares.	Par value.	Quotations.	Name	No. of shares.	Par value.	Quotations.
Ben Hur.	60,000	$1	$0.31	*Number Six.	1,000,000	$0 10	$0.10
Black Tail.	1,000,000	1	.26	Palo Alto	1,000,000	1	14
Bryan & Sewall.	1,000,000	1	04	*Pearl	1,000,000	1	12
Butte & Boston.	1,000,000	1	.11¾	P. cahontas.	1,000,000	1	05
Fardwan	1,000,000	1	.06	Princess Maud.	1,000,000	1	15
Eureka First T	1,000,000	1	.03	Quilp	1,000,000	1	15
Eureka Queen.	1,000,000	1	.09	*Rebate	1,000,000	1	24
Gold Harvest Con	1,000,000	1	.06	Republic Gold	1,000,000	1	3 95
Gold Leaf	1,000,000	1	.05	Republic Big Six.	1,250,000	1	05
Iron Monitor	1,000,000	1	.10	Republic No. 2.	1,000,000	1	06
*Jim Blaine.	1,000,000	1	52	San Poil.	500,000	1	.81
Liberty	1,000,000	1	.15	*Surprise.	1,000 000	1	.10
*Lone Pine Con.	1,000,000	1	.30	Thoughtful	1,000,000	0 10	.02
Merrimac.	1,000,000	0.1	.06	Tom Thumb.	1,000,000	1	34
Monroe.	1,000,000	1	.05	Trade Dollar	1,000,000	0 1	14
Morning Glory.	1,000,000	0.16	.25	Treasury.	1,000,000	0 10	05
Mountain Lyon.	1,000,000	1	.85				

§ Telegraphic quotations of the British-Canadian Investment and Mining Syndicate.
* Under Republic management.

TORONTO, CAN.*

NAME OF COMPANY.	Par val.	Jan 13. B.	Jan 13. A.	Jan. 14. B.	Jan. 14. A.	Jan 16. B.	Jan 16. A.	Jan. 17. B.	Jan. 17. A.	Jan 18 B.	Jan 18 A.	Jan. 9. B.	Jan. 9. A.	Sales
Ontario:														
Ham. Reef	$1	.19¾	.22	.19¾	.22	19	.21	19¾	.20¾	.19¾	.20½	...	....	16,530
Olive.	1	.93	.95	93	95	.93	95	.93	95	94	.95	...	.....	....
Sup G & C.	1	10¾	.11	.10¾	11	10¾	11¼	.10½	.12	11	.11¼	...	.....	2,530
British Col.:														
Athabaska.	1	.39½	.41¾	.39	.42	39¾	.48	.38	42	.....	43	.....	....	700
C'rib'o,M'K.	1	1.45	1.46¾	1 43	1 45¾	1 45	1.48	1 41	1 44	1.48	1 47	.....	.....	300
CrowsN.P.C	1	27 75	29 5	27 50	29 50	29 00	31 00	28 00	31 00	27 50	29 50	.....	....	900
Dardanelles	1	11¼	12¾	11	13¾	12¾	14	11	12¾	11	12¾	.....	.....	....
Deer Park.	1	.18¾	19¾	19	19¾	....	.20	9	19¾	19	19¾	.....	.....	2,000
Dundee.	1	.28¾	3)	.28¾	.35	28¾	.32	38	.42	29	3)	.....	....	2,00
Even'gStar.	1	.05	.06	.14	.16	.05¾	.07	04¾	.06	05¼	.16¾	.....	.....	500
Gold. Cache	1	03¼	04¾	....	.15	03¾	.04¾	03¾	05	05¾	04¾	.....	.....	1,000
Gold Star.	1	48	.51	49	51	..	.51	49	5)	.48	.49¾	...	.....	3,850
GrandPrize	1	....	04	....	.14	....	....	....	.04	....	04	.....	.....	....
Iron Colt.	1	....	10¾	10¾	11	....	09¾	10¾	11	....	.10	.....	.....	1,800
Iron Mask.	1	89½	.92¾	.83¾	.92	88	93	89	93	88	.93	.....	.....	....
Knob Hill.	1	.81	.83¾	....	85	.80	85	82	.85	.80	85	.....	.....	500
Minnehaha	1	.16¾	.21	16	.21	.16¾	21	16	.21	16¾	21	.....	.....	5,000
Monte Crist	1	10¾	.11	09¾	.10	.10¾	.10¾	10¾	10¾	10	11	.....	.....	2,000
Noble Five.	1	.15	.15¾	14	.17¾	.14¾	16¾	14	.16	14	.16	.....	.....	1,000
N'rn'n Belle.	1	....	.03¾	....	.03¾	....	.03¾	....	....	....	03¾	.....	.....	....
Novelty.	1	....	.04	....	.04	.03	.04	.03	03¾	.05	....	.....	.....	....
Silver Bell.	1	.05¾	.07	05¾	.07	.05¾	.07¾	.07	.07¾	.05¾	.06¼	.....	.....	3,000
Smuggler,g.	1	11	15	.13¾	.14	.11¾	.13	.14¾	.16	12¾	.13¾	.....	.....	49,000
Van Anda.	1	03¼	.05	03¾	.05	.....	.03¾	03¾	.04¼	03¾	.05	.....	.....	2,000
Waterloo	1	.....	....	.08¾	.10	.....	....	....	....	.08	.09	.....	.....	2,500
White Bear.	1	.15	.15¾	14	.17¾	.14¾	16¾	14	.16	14¾	.16	.....	.....	1,000
Winchester	¼	....	.11¾	....	.10	....	.18	.....	.10	....	....	.....	.....	....
Develop Co:														
B.C Gold F.	1	.04¾	.05¼	.04	.06	05¾	.06	04¾	05¼	04¼	05¾	.....	.....	.....
Gold Hills.	1	.....	09	06	.09	06	10	.....	.10	.04	.09	.....	.....	....

* Official quotations of the Toronto Mining and Industrial Exchange. Total shares sold, 97,250.

MEXICO.

Jan. 12.

NAME OF COMPANY.	No. of shares.	Last div'd	Prices. Op'g	Prices. Cl'g.	NAME OF COMPANY.	No. of shares.	Last div'd	Prices. Op'g	Prices. Cl'g
Chihuahua:					Hidalgo:				
Gloria.	1,500	.....	$60	$50	Real del Monte.	2,354	10 00	270	260
Durango:					San Francisco.	6,000	2.00	28	270
Barradon y Cab.	2,400	.....	150	150	San Rafael y An.	1,200	10.00	1,000	980
Candelaria de Pan.	1,200	.....	20	20	do. aviado.	1,200	6 00	500	460
Capuzaya.	2,400	.....	10	50	do. del Oro.	3,000	.....	15	10
Penoles.	2,500	30.00	2,300	2,000	Soledad.	960	5 00	380	370
Restauradora.	10,000	.....	20	30	Sorpresa.	960	5 00	220	200
Rosario y Anexas.	4,800	.....	30	20	Union.	2,000	4.00	370	400
Guanajuato:					Mexico:				
Angustias.	2,400	5.00	330	300	Coronas	500	....	75	75
Cinco Senores y An	2,000	15.00	400	370	Esperanza y An.	3,000	10 00	1,350	1,400
El Oro.	500	.....	30	30	Michoacan				
do. pref.	2,000	.....	30	30	Luz de Borda ava	3,000	.....	20	28
Guadalupe.	10,000	2.00	240	220	do aviado.	1,000	.....	15	20
Trinidad, aviador.	2,000	....	90	10	Pueblo:				
do. aviado.	400	....	90	99	Tlaxingo.	2,400	....	40	27
Zona Minera de Paz	2,400	....	90	85	S. Luis Potosi:				
Hidalgo:					Concep. y An.	2,400	....	15	155
Amistad y Concord.	9,600	1.39	30	31	Sta. Mariadela Paz	2,400	10 00	700	715
arevalo.	720	.....	200	200	Zacatecas:				
Bartolome de Med.	2,000	3.00	80	80	Asturiana y An	2,500	10.00	90	110
Carmen.	1,100	7.75	50	520	Cabezon	2,400	....	20	15
Luz de Maravillas.	1,100	....	180	200	C'delar. de Pinos.	2,500	....	150	130
Pabellon.	1,000	27.89	40	20	Palma de Somb.	2,400	....	110	100

NOTE.—In most of the older Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Many newer companies have a nominal par value, usually $50 or $100. Prices are in Mexican dollars.

SHANGHAI, CHINA.*

Dec. 19.

NAME OF COMPANY.	Country.	No. of shares.	Value. Par.	Value. Paid up.	Last dividend. Date.	Last dividend. Amount.	Price.
elebu Mg. & Trad.	China.	45,000	$5	$5	Oct,. 1894.	$0.25	Taels 3.28
unjom Mg., Ltd.	"	60,000	8	5	.....	.....	" 4.38
do. pref	"	30,000	1	1	.....	.....	" 1.17
ank A'lian G. Mg.	"	200,000	£1	14s. 10d.	July. 1898.	.51	" 27.01
heridan Con. M.& M.	Colorado, U.S	20,000	Taels 100	Taels 100	.....	.....	" 2.50

* Special report of J P. Bissett & Co. The prices quoted are in Shanghai taels.

STOCK QUOTATIONS.

LONDON.

Jan. 6.

NAME OF COMPANY.	Country.	Authorised capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers
			£ s. d.	s.d.		£ s. d.	£ s. d.
Alaska-Mexican, g	Alaska	£200,000	1 0 0	0 4.8	Nov., 1898	1 0 0	1 5 0
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	" "	4 5 0	4 10 0
Anaconda, c., $	Montana	6,000,000	5 0 0	5 1¾	" "	6 16 3	6 18 9
Cariboo, g & f, pref	BritishCol'mbia	160,000	1 0 0	.....	.....	15 0	1 0 0
Chiapas, g., & c.	Mexico	262,500	1 0 0	.....	.....	5 0	7 0
Con. Gold Fields	"	300,000	1 0 0	.....	.....	15 0	1 0 0
De Lamar, g., $	Idaho	400,000	1 0 0	6	May, 1898	4 6	5 6
Elkhorn Priority (New), $	Colorado	87,500	1 0 0	1 0	June, 1898	1 6	2 6
Golden Gate, g	California	80,000	1 0 0	.....	.....	2 6	5 0
Grand Central, g., $	Mexico	30,000	1 0 0	2 0	Dec., 1898	1 5 0	1 7 6
Hall Mines, c., $	British Col	250,000	1 0 0	1 0	May, 1898	7 6	10 0
Le Roi, g	" "	1,000,000	5 0 0	.....	.....	15 0	17 6
Lillooet, F. R. & Car., g	" "	300,000	1 0 0	.....	.....	5 0	10 0
Montana, g., $	Montana	660,000	1 0 0	0 3	May, 1898	6 3	6 9
Mountain Copper	California	1,250,000	5 0 0	2 6	Sept, 1898	4 15 0	5 0 0
Plumas-Eureka, g	"	261,250	4 0 0	0 6	Oct., 1896	2 6	3 6
Richmond, g., $, l	Nevada	270,000	5 0 0	1 0	Dec., "	6 3	8 9
Sierra Buttes, g	California	245,000	4 0 0	0 6	Apr., "	1 6	2 6
Colomb. Hydraulic, g	Colombia	75,000	1 0 0	6	Jan., 1899	12 6	15 0
Chile	Chile	200,000	2 0 0	2 0	Dec, 1898	2 12 6	2 15 0
Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Dec., 1898	2 2 6	2 5 0
St. John del Rey, g	Brazil	60,000	1 0 0	0 6	July, 1898	1 8 0	1 9 0
Tolima A., $, g	Colombia	70,000	5 0 0	5 0	July, 1897	1 5 0	1 15 0
Tolima B., $, g	"	30,000	5 0 0	5 0	"	15 0	1 5 0
Utah Con., g	Utah	300,00	1 0 0	rts.	Mar., 1898	4 15 0	5 0 0
British Am. Corp.	BritishCol mbia	1,250,000	1 0 0	rts.	Dec., 1898	15 3	15 9
Linares, l	Spain	45,00	3 0 0	12 6	Sept., 1898	8 0 0	8 10 0
Mason & Barry, c., sul	Portugal	630,000	5 0 0	4 0	Oct., 1898	3 7 6	3 12 6
Rio Tinto, c	Spain	1,625,000	5 0 0	£1	Nov., 1898	32 12 6	32 17 6
" " pref	"	1,625,000	5 0 0	2 6	May, 1898	5 18 9	6 1 3
Tharsis, c	"	1,350,000	2 0 0	0 6	" 1898	7 15 0	8 0 0
Assoc. Gold Mines	W. Australia	5,0,000	1 0 0	1 0	July, 1898	6 3 9	6 6 3
Broken Hill Prop., $	N.S.Wales	384,000	8	1 6	Jan., 1899	2 3 9	2 6 3
Great Boulder, Prop	W. Australia	1,750,000	2	0 6	Nov., 1898	1 2 0	1 2 6
Hannan's Brownhill, g	"	110,000	1	0 7 6	Nov., 1898	7 8 9	7 11 3
Harquahala	"	300,000	1	0 0 6	Nov., 1898	.....	1 3
Ivanhoe Gold Corp	"	1,400,000	5	0 0	.....	6 13 9	6 16 3
Kalgurlie, g	"	120,000	1	0 0	.....	6 13 9	6 16 3
Lake View Consols, g	"	250,000	1	0 0	16 0	Apr., 1898	9 6 3	9 8 9
Mt. Lyell M. & R., l., c	Tasmania	900,000	5	0 0	2 6	Jan., 1899	6 5 0	6 10 0
Mt. Morgan, g	Queensland	1,000,000	1	0 0	7	Dec., 1898	5 12 6	5 17 6
Waihi g	New Zealand	320,000	1	0 0	2 0	Dec., 1898	4 17 6	5 2 6
West Aust. Jt. Stk. Lin. & F	W. Australia	1,100,0 0	1	00 0	1 0	"	12 6	12 6
Champion Reef, g	Colar Fields	220,000	10	0	4	Jan., 1899	4 17 6	5 0 0
Mysore Gold, g	"	250,000	1	10 0	5 0	Nov., 1898	5 2 6	5 5 0
Nundydroog, g	"	242,000		0 0	3 4	" 1898	3 8 9	3 11 3
Ooregum, g	"	145,000	1	0 0	1 0	Dec., 1898	3 16 3	3 18 9
" pref. g	"	120,000	1	0 0	1 0	" 1898	4 3 9	4 6 3
Angelo, g	Transvaal	275,000	1	0 0	5 0	Jan., 1899	7 0 0	7 2 6
Bonanza, g	"	200,000	1	0 0	10 0	Dec ., 1898	4 5 0	4 7 6
British S. Af., chartered	So. Africa	3,750,000	1	0 0	rts.	Apr., 1898	2 18 9	3 1 3
Cape Copper, c	"	900,000	1	0 0	7 0	Jan., 1899	4 5 0	5 0 0
" pref	"	150,000	2	0 0	7 0	" 1899	4 12 6	4 17 6
City & Suburban (New), g	Transvaal	1,960,000	2	0 0	6 0	Feb , 1899	5 7 6	5 10 0
Con Deep Level, g	"	200,000	4	0 0	xb.	Apr., 1898	2 17 6	3 2 6
Crown Reef, g	"	120,000	1	0 0	10 0	Feb , 1899	14 5 0	14 10 0
De Beers Con., d	Cape Colony	3,950,000	1	0 0	£1	Dec., 1898	26 16 3	26 15 9
Durban Roodepoort, g	Transvaal	135,000	5	0 0	4	Dec. 1898	5 15 0	6 0 0
Ferreira, g	"	90,000	1	0 0	80 0	Dec., 1898	24 15 0	25 0 0
Geldenhuis Deep, g	"	350,000	1	0 0	9 0	Feb., 1899	11 0 0	11 5 0
Geldenhuis Est, g	"	200,000	1	0 0	7 6	" 1899	7 18 9	8 1 3
Ginsberg, g	"	160,000	1	0 0	4 0	Jan., 1899	3 2 6	3 5 0
Henry Sourse, g	"	125,000	1	0 0	10 0	Feb., 1899	9 7 6	9 12 6
Heriot (New), g	"	115,000	1	0 0	6 0	" 1899	6 17 6	7 2 6
Jagersfontein, d	Orange Fr. St.	1,000,000	1	0 0	6 0	Sept., 1898	9 12 6	9 15 0
Johannesburg Con. Invst	So. Africa	2,750,000	1	0 0	2 0	Aug., 1897	1 3 9	1 6 3
Jubilee, g	Transvaal	50,000	1	0 0	5 0	Feb., 1899	15 0 0	15 5 0
Jumpers, g	"	100,000	1	0 0	10 0	" 1899	5 7 6	5 10 0
Kleinfontein, g	"	275,000	1	0 0	rts.	Apr., 1898	2 12 6	2 15 0
Langlaagte Estate, g	"	300,000	1	0 0	3 0	Sept., 1898	3 15 0	4 17 6
May Con. (New), g	"	275,000	1	0 0	1 6	Jan., 1899	4 6 3	4 8 9
Meyer & Charlton, g	"	85,000	1	0 0	7 0	Dec., 1898	5 6 3	5 8 9
Namaqua, c	Cape Colony	200,000	1	0 0	2 6	Dec., 1898	3 3	3 6 3
Primrose (New), g	Transvaal	300,000	2	0 0	6 0	Jan., 1899	4 10 0	4 12 6
Rand Mines, g	So. Africa	400,000	1	0 0	£1	Feb., 1899	34 0 0	34 5 0
Robinson, g	Transvaal	2,750,000	1	0 0	9 0	" 1899	9 0 0	9 2 6
Sheba, g	"	1,100,000	1	0 0	0 6	July, 1898	1 7 6	1 10 0
Sim. & Jack Prop., g	"	5,000,000	5	0 0	3 6	Dec., 1898	5 0 0	5 2 6
Sim. & Jack West, g	"	400,000	1	0 0	.....	.....	3 10 0	3 15 0
Sim. & Jack East, g	"	70,0.0	1	0 0	.....	.....	2 18 9	3 1 3
Wemmer, g	"	60,000	1	0 0	15 0	Nov., 1898	12 7 6	12 14 6
Wolhuter, g	"	880,000	4	0 0	2 0	Feb., 1899	4 16 11	34 16 3
Worcester, g	"	100,000	1	0 0	3 0	Oct., 1898	2 15 0	3 0 0

Dividend pending.

PARIS.

Dec. 22.

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Op'ning.	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs.	27,000,000	2,000	75.00	2,174.00	2,13 .00
" " Firminy	"	"	3,000,000	500	85.00	3,300 00	3,300.00
" " Fives-Lille	"	"	12,000,000	500	25.00	506.00	505.00
" " Huta-Bank	Russia	Iron & steel	.....	500	.....	4,410.00	4,410.00
" " la Marine	France	Steel mfrs.	20,000,00	500	45.00	1,570.00	1,557.00
" " Longwy	"	"	.....	500	35.00	1,125.00	1,110.00
Anzin	"	Coal	.....	.....	190.00	5,500.00	5,498.00
Blache-St. Vaast	"	Steel	.....	1,000	160 .0	3,800.00	3,800.00
Bolco	Lower Cal.	Copper	.....	500	93.50	1,575.00	1,580.00
Briansk	Russia	Coal & Iron	.....	500	.....	1,278 75	1,282.50
Bruay	France	Coal	3,000,000	400	900.00	38,050.00	38,355.00
Cape Copper	S. Africa	Copper	15,000,000	50	1.50	123 00	122.50
Champ d'Or	"	Gold	3,375,000	25	.....	50.00	45.00
Courrieres	France	Coal	600,000	500	60.00	2,180.00	2,180'00
De Beers Consolidated	S. Africa	Diamonds	98,750,00	125	15.63	675.00	676.50
Denain-Anzin	France	Steel	.....	500	20.00	800.00	800.00
Dombrowa	Russia	Coal	.....	500	12.50	995.00	1,095.00
Donets	"	Steel	.....	.....	.....	1,020.00	1,020.00
Dourges	"	Coal	.....	1,000	300.00	20,975.00	20,975.00
Dynamite Centrale	France	Explosives	.....	500	12.50	506.00	497.00	
Epinac	"	Coal	.....	2,500	20.83	600.00	600.00
Escombrera-Bleyberg	Spain	Lead	.....	500	35.00	1,055.00	1,045.00
Fraser River	Brit. Col'mb	Gold	250,0.0	25	.....	8.25	8.25
Huanchaca	Bolivia	Silver	40,000,00	125	5.00	45.00	45.00
Langlaagte Estate	S. Africa	Gold	11,750,000	25	11.25	80.00	99.50
Lagunas	Chile	Nitrates	16,250,000	125	12.51	39.0.	38.00
Laurium	Greece	Zinc & lead	16,800,000	500	30.00	620.00	610.00
Lautaro	Chile	Nitrates	13,750,000	125	.....	105.00	105.00
Malfidano	Italy	Zinc	12,500,000	500	40.00	1,120.00	1,110.00
Metaux, Cie. Fran. de	France	Metal d'iers.	25,000,00	500	30.00	624.00	622.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	1,035.00	1,005.00
Napthe Baku	Russia	Petroleum	.....	.....	.....	7.3.5	716.00
Napthe, Le	"	"	.....	.....	.....	2,665.00	2,625.0
Napthe Nobel	"	"	.....	.....	.....	530.00	525.00
" " parts	"	"	.....	.....	.....	10,590.00	10,600.0
Nickel	N.Caled'nia	Nickel	10,000,00	2 0	30.00	329 00	334.50
Paccha-Jazpampa	Chile	Nitrates	9.000.000	125	.....	12.5	12.50
Penarroya	Spain	Coal, etc	....	500	65.00	2,420.0	2,380.00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25	.....	4.25	4.00
Rio Tinto	Spain	Copper	40,625,000	125	47.70	788.00	777.00
" " preferred	"	"	40,625,000	125	.....	155.00	155.00
Rive-de-Gier	France	Coal	.....	.....	.....	22.75	22.75
Robinson	S. Africa	Gold	68,750,000	125	12.50	234.00	235.00
St. Etienne	France	Coal	.....	.....	18.00	451.00	453.50
Salines de l'Est	France	Salt	.....	500	11.50	279.00	270.00
Salines du Midi	France	etc	.....	500	20.00	875 00	885.0
Seis Gem. de la Rus. Mer	Russia	etc	.....	500	25.00	512.0	519.0
Tharsis	Spain	Copper	33,750,000	50	8.75	192.50	197.50
Vicoigne-Neux	France	Coal	.....	1,000	700.00	28,700.00	23,700.0
Vielle Montagne	Belgium	Zinc	9,000,000	80	3).00	717.00	765.00

MEETINGS.

NAME OF COMPANY.	Location.	Meeting.	Date.	Place.
Battle Mtn. Con.	Colorado	Annual.	Feb. 23.	Victor, Colo.
Buswhacker	"	"	Feb. 9.	Aspen, Colo.
Cannelton Coal	W. Virgn'a	"	Feb. 1.	115 Broadway, New York City.
Daly	Utah	"	Feb. 15.	Salt Lake City, Utah.
Daly West	"	Special.	Jan. 31.	"
Eagle	Oregon	Annual.	Feb. 20	" "
Emerald	Utah	"	Feb. 5.	" "
Eureka Hill	"	"	Feb. 15.	" "
Geyser	Colorado.	"	Feb. 20.	Silver Cliff, Colo.
Globe Sm. & Ref	"	"	Feb. 2.	Denver, Colo.
Great Eastern	Utah	"	Feb. 13	Salt Lake City, Utah.
Hortense	Colorado	"	Feb. 1.	Denver, Colo.
Little Pittsburg	Utah	"	Feb. 8.	Salt Lake City, Utah.
Lone Star	California	"	Jan. 21.	508 California st., San Francisco, Cal.
Mammoth	Utah	"	Feb. 1.	310 Atlas Bldg , Salt Lake City, Utah.
Meteor	"	"	Feb. 1	Salt Lake City, Utah.
Monte Del Rey	"	"	Jan. 21	28 Eagle Block, Salt Lake City, Utah.
Moon-Anchor	Colorado	"	Feb. 15.	Colorado Springs, Colo.
Morgan	Utah	"	Feb. 19	Salt Lake City, Utah.
Queen of Sheba	"	"	Feb 9.	142 Main st., Salt Lake City, Utah.
Standard Con	California	"	Feb 27	310 Pine st., San Francisco, Cal.
Tecumseh	Michigan	"	Feb. 17	Boston, Mass.
Utah Con	Nevada	"	Jan. 25	309 Montgomery street, San Francisco, Cal

DIVIDENDS.

NAME OF COMPANY.	Current dividends. Date.	Current dividends. Am't.	Paid since Jan. 1, 1899.	Total to date.
Ætna Con	Jan. 2	$10,000	$10,000	$160,000
Anchoria-Leland	Jan 14	6,000	6,000	180,000
Apollo Con., Cal	Jan.10	40,000	40,000	140,000
Boston & Colo. Sm.	Jan. 3	75,000	75,000	300,000
Bunker Hill & S	Jan. 4	21,300	21.000	621,000
Centennial Eureka	Jan.13	15,000	15,000	2,025,000
Central Lead	Jan.	5,000	5,000	87,000
Colorado Sm.	Jan. 2	100,000	100,000	1,945,000
Deer Trail No. 2, Wash	Jan.13	2,500	2.500	17,500
Doe Run	Jan. 2	2,500	2,500	62,500
Gold Coin, Vict	Jan.25	10,000	10,000	16',000
Golden Cycle	Jan.16	5,000	5,000	158,500
Grand Central, Ut.	Jan.10	31,250	31,250	250,000
Highland	Jan.19	20 000	20,000	3,804,718
Homestake	Jan.25	62,500	62,500	7,213,750
Idaho, B. C	Jan.	28,000	28,000	292,000
Lillie	Jan. 1	12,500	12,500	50,000
Mercur	Jan.20	25,000	25,000	1.266,000
Mont. Ore Pur	Jan 20	$80,000	$80,000	$880,000
Napa Con	Jan. 2	20,000	20,000	970,000
New Idria	Jan. 2	20,000	20,000	100,000
Parrot	Jan. 2	69,000	69,000	2,207,893
Pennsylvania	Jan.	2,575	2.575	54,225
Plumbago, Cal	Jan.	45,000	45 000	45,000
Quincy	Feb.15	350,000	350,000	10,470,000
Republic, Wash	Jan.10	30,000	30,000	120,000
Sacramento	Jan. 3	5,000	5 000	62,000
Silver King	Jan.10	50,000	50,000	1.800,000
Smuggler	Jan.14	10,000	10,000	1,105 000
Strong	Jan.	25,000	25 000	470,000
Swansea	Jan.10	5,000	5,000	141,500
Vindicator	Jan.20	50,750	50 750	177.625
War Eagle, B. C.	Jan.15	26,250	26 250	204,000
Yellow Aster	Jan.	10,000	10,000	168,789
Totals		$1,269,825	$1,269,825	$37,739,005

ASSESSMENTS.

NAME OF COMPANY.	Location.	No.	Delinq.	Sale.	Amt.
Andes	Nev	47	Jan. 24	Feb. 16	.05
*Arnold	Mich.		" 25		3.00
B'ff'loHumpDev.	Wash.	1	"		.002
Central Eureka	Cal.	9	" 9	Jan. 30	.01½
Chic. & Mercur	Utah		" 20	Feb. 1	.01
*Chollar	Nev.	48	" 26	" 16	.10
Geyser	Colo.		" 10	" 10	.10
*Hale & Norcross	Nev.	1	Feb. 7	Feb. 28	.15
Hor'shoe B'r C'n	Cal.	11	Jan. 4	Jan. 30	.05
Julia, Con	Nev.	29	" 18	Feb. 9	.03
Junction	Cal.	22	" 9	Jan. 30	.03
La Grange	"	11	" 6	Feb. 1	.15
*Marguerite	"	12	Feb. 6	March 6	.10
May Day	Utah		Jan. 3	Feb. 22	.00½
Montreal	Utah		" 9	" 15	.05
Morning Star	Nev.		Dec. 24	" 21	.00½
*National Con.	Cal.	5	Jan. 20	Feb. 15	.10
Occidental Con	Nev.	31	Dec. 3	Jan. 23	.10
*Savage	"	97	Feb. 6	Feb. 27	.10
Shower Con	Utah	1	March 1	April 3	.02
*Snow Flake	"	11	Feb. 13	March 4	.01
*South Side			Jan. 16		.10
Tetro	Utah	6	" 7	Feb. 4	.01
Union Con	Nev.	57	" 3	Jan. 23	.03
Utah Con	"	29	" 11	Feb. 1	.05

* New assessment.

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.			Dividends. Total Paid.	Dividends. Date and Amount of Last.		
1	Adams, s. l. c.	Colo..	$1,500,000	150,000	$10	*				$693,500	Oct...	1895	.04
2	Ætna Cons., q.	Cal ..	500,000	100,000	5	*				160,000	Jan...	1899	.10
3	Alaska-Mexican, g.	Alask	1,000,000	200,000	5					317,031	Nov..	1898	.10
4	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	*				3,925,000	Nov..	1898	.37½
5	Alice, g. s.	Mont.	10,000,000	400,000	25	*				1,075,000	April.	1898	.05
6	American Gold, g. s. c. l	Colo..	3,000,000	300,000	10	*				362,000	Oct...	1898	.09
7	Anaconda Copper	Mont.	30,000,000	1,200,000	25					8,250,000	Nov.	1898	1.25
8	Anchoria-Leland, g.	Colo..	600,000	600,000	1	*				180,000	Jan...	1859	.01
9	Argentum Juniata, g. s. l	Colo..	2,600,000	1,300,000	2	*				156,000	Oct...	1895	.03
10	Associated, g.	Colo.	1,250,000	1,250,000	1	*				62,000	Dec..	1898	.01
11	Atlantic, c.	Mich.	1,000,000	40,000	25					780,000	Feb..	1898	1.00
12	Aurora, l.	Mich.	2,500,000	100,000	25	*				750,000	May..	1898	.50
13	Bald Butte	Mont.	250,000	250,000	1	*				649,648	Dec..	1898	.06
14	Bangkok-Cora Bell, s. l.	Colo..	600,000	600,000	1					108,000	July..	1896	.01
15	Big Six, g. s.	Colo..	500,000	500,000	1					15,000	May..	1898	.00½
16	Boston & Colorado, l.	Colo..	750,000	15,000	50					300,000	Jan..	1899	5.00
17	Boston & M. Cons., g. s. c.	Mont.	3,750,000	150,000	25	*				9,125,000	Nov..	1898	5.00
18	Breece, l.	Colo..	5,000,000	200,000	25					30,000	Dec..	1898	.05
19	Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10	*				2,318,400	Nov..	1898	.10
20	Bunker Hill & S., s. l.	Idaho	3,000,000	300,000	10					621,000	Jan..	1899	.07
21	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25					56,850,000	Dec..	1898	10.00
22	Cariboo, g.	B.C..	800,000	800,000	1					236,965	Aug..	1898	.02
23	Centen'l-Eureka, g. s. l. c	Utah.	1,500,000	30,000	50	30,000	Mar..	1889	1.00	2,010,000	Mar..	1897	1.00
24	Central Lead, l.	Mo...	1,000,000	10,000	100	*				87,000	Jan..	1899	.50
25	Champion, g. s.	Cal...	340,000	34,000	10					296,200	April.	1898	.25
26	Charleston, p. r.	S. C..	1,000,000	10,000	100	*				180,000	Dec..	1898	1.50
27	Colorado, Sm., g. s. c.	Mont.	1,000,000	100,000	10	*				1,945,000	Jan..	1899	1.00
28	Con. Tiger & Poorman	Idaho	1,000,000	1,000,000	1	*				20,000	Dec..	1898	.02
29	Creston Leasing	Colo..	1,000,000	1,000,000	1					10,000	Dec..	1898	.01
30	Crowned King, g. s. l.	Ariz .	6,000,000	600,000	10	*				232,000	Dec..	1898	.02
31	Dalton & Lark, s. l.	Utah.	2,500,000	2,500,000	1					87,500	Aug..	1896	.00½
32	Daly, s. l.	Utah.	3,000,000	150,000	20					2,925,000	Mar..	1897	.25
33	†Deadwood-Terra, g.	S. D..	5,000,000	200,000	25	*				1,350,000	May..	1898	.15
34	De Lamar, g. s.	Idaho	2,000,000	400,000	5					2,298,000	May ..	1898	.29
35	Della S.	Colo..	1,000,000	1,000,000	1					60,000	Jan..	1897	.10
36	Dutch, g	Cal ..	1,500,000	150,000	10					39,000	Feb..	1898	.04½
37	Elkton Cons., g.	Colo..	1,250,000	1,250,000	1					656,961	Nov..	1898	.01½
38	El Paso, g. s.	Colo..	650,000	650,000	1					12,393	Jan..	1898	.01
39	Enterprise, s. l.	Colo..	500,000	500,000	1					900,000	Sept..	1898	.05
40	Empire State-Idaho	Idaho	1,000,000	100,000	10					61,902	Dec..	1898	.10
41	Fern	B.C..	200,000	200,000	1					10,000	Jan..	1898	.05
42	Florence, s.	Mont.	2,500,000	500,000	5	*				137,530	Aug .	1897	.01
43	Franklin, c.	Mich.	1,000,000	40,000	25					1,240,000	Jan..	1894	2.00
44	Galena, g. s. l.	Utah.	1,000,000	100,000	10					71,000	Jan..	1897	.05
45	Garfield-Grouse, g.	Colo..	1,200,000	1,200,000	1	*				24,000	Feb..	1897	.01
46	Geyser-Marion, g.	Utah.	1,500,000	300,000	5					96,000	Sept..	1898	.02
47	Gold Coin, g. s.	Colo..	1,000,000	200,000	5	*				160,000	Nov..	1897	.05
48	Gold Coin of Victor, g.	Colo..	1,000,000	1,000,000	1					160,000	Jan..	1899	.01
49	Golden Cycle, g.	Colo..	1,000,000	200,000	5					158,500	Jan..	1899	.02½
50	Golden Fleece, g. s.	Colo..	600,000	600,000	1	*				569,179	Feb..	1897	.01
51	Gold & Globe, g.	Colo..	750,000	750,000	1					51,625	July..	1897	.00⅛
52	Golden Reward, g.	S. D..	1,000,000	100,000	10					155,000	Feb..	1898	.15
53	Grand Central, g.	Utah.	250,000	250,000	1					250,000	Jan..	1899	.12½
54	Hall Mines, Ltd.	B. C..	1,250,000	250,000	5					160,000	May .	1898	.25
55	Hecla Cons., g. s. c. l.	Mont.	1,500,000	30,000	50	*				2,175,000	Feb..	1897	.50
56	Helena & Frisco, s. l.	Idaho	2,500,000	500,000	5	*				475,000	Aug..	1896	.04
57	Highland, g.	S. D..	10,000,000	100,000	100	304,000				3,804,718	Jan..	1899	.20
58	Holy Terror, g.	S. D..	500,000	500,000	1					117,000	Sept..	1898	.03
59	Homestake, g.	S. D..	12,500,000	125,000	100	200,000	July..	1878	1.00	7,243,750	Jan..	1899	.50
60	Hope of St. Louis, s.	Mont.	1,000,000	100,000	10	*				762,252	Mar..	1898	.10
61	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	*				5,210,000	Oct...	1898	.05
62	Idaho	B.C..	500,000	500,000	1					292,000	Jan..	1899	.05
63	Iowa, g.	Colo..	1,000,000	1,000,000	1					95,000	June.	1898	.00½
64	Iron Mountain, g. s. l. l.	Mont.	5,000,000	500,000	10	*				507,500	April.	1898	.02
65	Isabella, g.	Colo..	2,250,000	2,250,000	1					270,000	June.	1897	.00½
66	Jersey Leasing	Colo..	300,000	158,167	1					137,875	Oct...	1898	.03½
67	Last Chance, s. l.	B. C..	500,000	500,000	1	*				40,000	Jan..	1897	.04
68	Le Roi	B. C..	2,500,000	500,000	5					825,000	April.	1898	.10
69	§§§Lillie, g.	Colo..	1,250,000	250000	5					37,500	Dec..	1898	.05
70	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	*				1,350,000	Dec..	1898	.05
71	Matoa, g.	Colo..	1,000,000	1,000,000	1					25,000	Dec..	1898	.02½
72	Mead, g.	Cal..	200,000	200,000	1					80,000	Dec..	1898	.40
73	Mercur, g.	Utah.	5,000,000	200,000	25	*				1,266,000	Jan..	1899	12½
74	Minnesota Iron, l.	Minn.	16,500,000	165,000	100	*				4,735,000	Oct...	1898	1.50
75	Modoc, g.	Colo..	500,000	500,000	1					100,000	Dec..	1898	.01
76	Montana, Ltd., g. s.	Mont.	3,300,000	660,000	5	*				2,925,640	May .	1898	.05
77	Montana Ore Purchas'g	Mont.	2,500,000	80,000	25	*				880,000	Jan..	1899	1.00
78	Moon-Anchor, g.	Colo..	600,000	600,000	1	*				261,000	Nov..	1898	.07½
79	Moose, g.	Colo..	600,000	600,000	1					186,000	Jan..	1896	.01
80	Morning Star, g.	Cal...	240,000	2,400	100	70,800	Feb..	1887	.75	678,600	Dec..	1898	5.00
81	Mt. Rosa, g.	Colo..	1,000,000	1,000,000	1					60,000	Jan..	1898	.02
82	Mountain Copper	Cal ..	6,250,000	250,000	25					93,750	Sept..	1898	.62½
83	Napa Cons., q.	Cal ..	700,000	100,000	7	*				970,000	Jan..	1899	.20
84	New Idria Quicksilver.	Cal...	500,000	100,000	5					100,000	Jan..	1899	.20
85	N. Y. & Hon Rosario, s. g.	C. A..	1,500,000	150,000	10	*				1,102,500	Dec..	1898	.10
86	North Star, g.	Cal ..	2,000,000	200,000	10	20,000	June.	1885	.02	500,000	Nov..	1898	.25
87	Ontario, s. l.	Utah.	15,000,000	150,000	100					13,557,500	Nov..	1897	.75
88	Ophir Hill.	Utah.	25,000	1,000	25					20,000	Dec..	1898	20.00
89	Osceola, c.	Mich.	2,500,000	100,000	25	*				2,522,500	Dec..	1898	2.00
90	Parrot, c.	Mont.	2,300,000	230,000	10	*				2,207,898	Jan..	1899	.30
91	Pennsylvania Cons.	Cal...	5,150,000	51,500	100	50,051	Feb..	1892	.05	54,225	Jan..	1899	.05
92	Pioneer g.	Cal...	1,000,000	100,000	10					50,000	Dec..	1898	.12½
93	Plumbago, g.	Cal ..	300,000	300,000	1					45,000	Jan..	1899	.15
94	Portland, g.	Colo..	3,000,000	3,000,000	1	*				2,227,080	Dec..	1898	.02
95	Princess, g.	Colo..	1,000,000	1,000,000	1					45,000	Feb..	1897	.00½
96	Quincy, c.	Mich.	2,500,000	100,000	25	*				10,470,000	Feb..	1899	3.50
97	Rambler-Cariboo	B. C..	1,000,000	1,000,000	1					40,000	April.	1897	.02
98	Raven, g.	Colo..	1,500,000	1,500,000	1					15,000	Mar..	1898	.01
99	Reco, s. l.	B. C..	1,000,000	1,000,000	1					297,500	Jan..	1898	.10
100	Republic, g.	Wash	1,000,000	1,000,000	1					120,000	Jan..	1899	.03
101	Sacramento, g.	Utah.	5,000,000	1,000,000	5					62,000	Jan..	1899	.00½
102	St. Joseph, l.	Mo...	3,000,000	300,000	10	*				2,784,500	Dec..	1898	1.50
103	Santa Rosalia, g. s.	Cal...	100,000	100,000	1					125,000	Feb..	1898	.10
104	Silver King, g. s. l.	Utah.	3,000,000	150,000	20	3,000	Jan..	1897	.02	1,800,000	Dec..	1898	.25
105	Slocan Star.	B. C..	1,000,000	2,000,000	0.50					400,000	Mar..	1897	.05
106	Small Hopes, s.	Colo..	5,000,000	250,000	20	*				3,300,000	June.	1898	.10
107	Smuggler, s. l. z.	Colo..	1,000,000	1,000,000	1					1,105,000	Jan..	1899	.01
108	South Swansea, s. l.	Utah.	150,000	150,000	1					104,960	Aug..	1898	.05
109	§Standard Cons., g. s.	Cal...	20,000,000	200,000	100					5,674,940	Aug..	1898	.10
110	Swansea, s. l.	Utah.	500,000	100,000	5					141,500	Jan..	1899	.05
111	Tamarack, c.	Mich.	1,500,000	60,000	25					5,570,000	Dec..	1898	4.00
112	Tomboy, g.	Colo..	2,000,000	200,000	10	*				650,000	Dec..	1898	.25
113	Union, g.	Colo..	1,250,000	1,250,000	1					73,000	June.	1896	.01
114	Utah.	Utah.	1,000,000	100,000	10	*				177,000	Dec..	1897	.01
115	Victor, g.	Colo..	1,000,000	200,000	5	*				1,155,000	Dec..	1898	.50
116	Vindicator, Cons. g.	Colo..	1,500,000	1,015,000	1					177,625	Jan..	1899	.05
117	§§ War Eagle, Cons.	B. C..	2,000,000	1,750,000	1					204,000	Jan..	1899	.01½
118	Western Mine Enterp.	Mont.	500,000	500,000	1	*				48,680	Jan..	1898	.20
119	Whitewater.	B. C..	625,000	125,000	5					194,000	April.	1898	.32
120	Wolverine, c.	Mich.	1,500,000	60,000	25	180,000	Mar..	1895	1.00	60,000	Oct...	1898	1.00
121	Yellow Aster, g.	Cal...	1,000,000	100,000	10	*				168,789	Dec..	1898	.10

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.		
1	Ada Cons., s. l.	Utah.	$100,000	100,000	$1	$3,333	Nov..	1895	.01½
2	Alamo, g. c. l.	Utah.	125,000	125,000	1	937	Mar..	1898	.00½
3	Alliance, g. s. l.	Utah.	100,000	100,000	1	200,000	Dec..	1895	.10
4	Allouez, c.	Mich.	2,000,000	80,000	25	1,520,937	June.	1894	1.00
5	** Alpha Cons., g. s.	Nev..	105,000	105,000	1	316,050	Nov..	1898	.03
6	** Alta, s.	Nev..	216,000	108,000	2	3,664,910	Nov..	1898	.05
7	American Quartz, g.	Cal..	1,000,000	100,000	10	1,000	Feb..	1897	.01
8	Anchor, g. s. l.	Utah.	1,500,000	150,000	10	560,000	Aug..	1893	.20
9	** Andes, g.	Nev..	300,000	100,000	3	1,200,000	Jan..	1899	.05
10	Baltol, g.	Cal..	1,000,000	100,000	10	53,000	Mar..	1898	.30
11	** Belcher, s. g.	Nev..	312,000	104,000	3	3,514,800	Nov..	1898	.10
12	Belle Isle.	Nev..	10,000,000	100,000	100	240,271	July..	1896	.10
13	Benton Con. s.	Nev..	10,800,000	108,000	100	587,023	June.	1897	.25
14	**Best & Belcher, g. s	Nev..	302,400	100,800	3	2,589,643	Nov..	1898	.10
15	Bogan.	Utah.	1,250,000	125,000	10	26,875	Dec..	1897	.01½
16	Boston & Cp. Clk., g.	Co'o..	400,000	200,000	2	20,000	Aug..	1898	.10
17	Brunswick Cons., g.	Cal..	500,000	500,000	1	160,000	July..	1897	.03
18	** Bullion, s. g.	Nev..	100,000	100,000	1	3,120,000	Nov..	1898	.05
19	Caledonia.	Nev..	300,000	300,000	3	3,210,000	ov..	1897	.10
20	Centennial, c.	Mich.	2,500,000	100,000	25	460,000	Mar..	1898	3.00
21	Central Eureka, g.	Cal..	4,000,000	400,000	10	84,000	Jan..	1899	.01½
22	**Challenge Cons, s. g.	Nev..	150,000	50,000	3	427,500	May .	1898	.10
23	**Chollar, g. s.	Nev..	336,000	112,000	3	2,059,800	Jan..	1899	.10
24	**Confidence, g. s.	Nev..	74,880	24,960	3	540,126	Nov..	1898	.10
25	**Con., Cal. & Va.	Nev..	540,000	216,000	2½	678,000	July..	1898	.25
26	**Cons. Imperial, g. s	Nev..	500,000	500,000	1	2,246,000	Nov..	1898	.01
27	**Con. New York	Nev..	100,000	100,000	1	160,500	Nov..	1898	.03
28	**Crown Point, g. s.	Nev..	300,000	100,000	3	2,970,000	Nov..	1898	.10
29	Dalton, s. l.	Utah.	2,500,000	500,000	5	53,750	Sept..	1898	.00½
30	Dexter.	Nev..	1,000,000	200,000	5	38,000	Apr..	1898	.15
31	Eagle, g. s.	Cal..	500,000	100,000	5	5,000	Dec..	1896	.05
32	Eagle, g. s.	Ore..	1,000,000	100,000	10	6,000	Oct..	1898	.01½
33	Emerald.	Utah	300,000	300,000	1	3,000	Oct..	1898	.00⅛
34	Eureka Cons., g. s. l.	Nev..	1,000,000	50,000	20	585,000	Sept..	1898	.20
35	Eureka Con. Drift, g.	Cal..	500,000	500,000	1	172,500	Nov..	1898	.00½
36	** Exchequer, g. s.	Nev..	1000,000	100,000	1	1,020,000	Dec..	1897	.05
37	Four Aces.	Utah.	250,000	250,000	1	5,000	Mar..	1898	.01
38	Galena.	Utah.	1,000,000	100,000	10	10,000	Oct..	1898	.10
39	Geyser, s. l.	Colo..	5,000,000	500,000	10	1,125,000	Jan..	1899	.10
40	Gold Belt, g. s.	Utah.	500,000	500,000	1	3,012	July..	1896	.00½
41	Golden Fleece Grav. g	Cal..	130,000	130	1000	56,260	Mar..	1897	2.00
42	Gold King, g.	Colo..	1,000,000	1,000,000	1	*			
43	** Gould & Curry	Nev..	324,000	108,000	3	4,614,350	Dec..	1898	.10
44	Great Eastern, g.	Utah.	1,500,000	300,000	5	5,000	Oct..	1898	.00½
45	Great Western, q.	Cal..	5,000,000	50,000	100	63,026	Jan..	1899	.15
46	Hale & Norcross, g. s.	Nev..	11,200,000	112,000	100	5,688,280	Apr..	1898	.10
47	Horse Shoe Bar Cons.	Cal..	6,000,000	60,000	100	85,800	Jan..	1899	.05
48	Idlewild, g.	Cal..	1,000,000	100,000	10	*			
49	Iron Silver, s. l.	Colo..	10,000,000	500,000	20	*			
50	Jackson, l.	Mich.	300,000	12,000	25	*			
51	Jupiter, g.	Cal..	2,000,000	20,000	$100	80,000	Feb..	1898	.20
52	** Julia Con.	Nev..	110,000	110,000	1	1,498,800	Jan..	1899	.03
53	** Justice, g. s. c.	Nev..	210,000	105,000	2	3,646,750	Nov..	1898	.10
54	Kentuck.	Utah.	600,000	300,000	2	30,000	Aug..	1898	.10
55	** Kentuck Cons., s.	Nev..	105,000	105,000	1	125,300	June.	1898	.05
56	Keystone, g.	Colo..	1,500,000	1,500,000	1	*			
57	Lacrosse, g.	Colo..	1,000,000	100,000	10	*			
58	Little Pittsburg.	Utah.	2,000,000	400,000	5	18,000	Dec..	1898	.01
59	Lower Mammoth.	Utah.	150,000	150,000	1	15,000	Oct..	1898	.05
60	Lucky Bill.	Utah.	300,000	120,000	2.50	56,400	June.	1898	.01½
61	Marguerite, g.	Cal..	500,000	50,000	10	70,000	Nov..	1898	.10
62	May Day.	Utah.	100,000	400,000	¼	4,000	Jan..	1899	.00½
63	Mayday, g. s.	Cal ..	50,000	50,000	1	5,000	May..	1898	.10
64	Mayflower, g.	Cal...	1,200,000	60,000	20	6,000	Sept..	1898	.05
65	Merced, g.	Cal...	1,500,000	100,000	15	200,000	July..	1896	2.00
66	Meteor, s. l.	Utah.	600,000	300,000	2	3,734	Oct...	1898	.00½
67	** Mexican, g. s.	Nev..	302,400	100,800	3	2,258,730	Nov..	1898	.10
68	Montreal.	Utah.	2,500,000	250,000	10	18,125	Jan..	1899	.05
69	Mt. Diablo s.	Nev..	5,000,000	50,000	100	150,000	Dec..	1898	.10
70	Morning Star, s.	Nev..	1,500,000	150,000	10	32,500	Dec..	1898	.00½
71	Nashville, g.	Cal ..	115,000	11,500	10	2,000	Sept..	1898	.17
72	North Banner, g. s.	Cal..	1,000,000	100,000	10	21,794	Oct..	1896	.02
73	North Belle Isle, s.	Nev..	10,000,000	100,000	100	523,074	July..	1896	.10
74	***No. Gould & Curry	Nev..	100,000	100,000	1	375,000	Dec..	1898	.10
75	Northern Light, g.	Utah.	2,000,000	400,000	5	80,000	July..	1898	.10
76	**Occidental Cons g s	Nev..	300,000	100,000	3	499,179	Dec..	1898	.10
77	** Ophir, g. s.	Nev..	324,000	108,000	3	4,602,568	Sept..	1898	.15
78	Opohonga.	Utah.	200,000	100,000	2	1,500	June.	1898	.01
79	Oro Cache, g. s.	S. D..	1,250,000	250,000	5	6,250	July..	1893	.00½
80	Osceola, g.	Cal ..	10,000,000	100,000	100	10,924	Sept..	1898	.01
81	*** Overman, g. s.	Nev..	230,400	115,200	2	4,129,690	Dec..	1898	.05
82	Peer, s.	Ariz..	10,000,000	100,000	100	215,000	July..	1894	.05
83	Peerless, s.	Nev..	10,000,000	100,000	100	410,000	July..	1894	.05
84	Pine Hill, g.	Cal ..	1,000,000	100,000	10	30,000	July..	1897	.05
85	** Potosi, g. s.	Nev..	336,000	112,000	3	2,157,200	Dec..	1898	.10
86	Quicksilver, pref., q.	Cal ..	4,300,000	43,000	100	*			
87	Quicksilver, com. q.	Cal ..	5,700,000	57,000	100	*			
88	Red Mountain, s.	Colo..	300,000	60,000	5	22,500	Mar..	1891	12½
89	Rescue, g.	Nev..	100,000	10,000	10	5,000	June.	1898	.10
90	Reward, g.	Cal..	64,000	64,000	1	63,680	Nov..	1898	.02
91	Ridge, c.	Mich.	500,000	20,000	25	239,939	Feb..	1897	1.00
92	St. Mary, c.	Mich.	1,000,000	40,000	25	4,000	July..	1895	.05
93	** Savage, g. s.	Nev..	280,000	112,000	2½	7,298,600	Nov..	1898	.10
94	Scorpion, s.	Nev..	100,000	100,000	1	445,000	Dec..	1897	.05
95	**Seg. Belcher & Mg s	Nev..	200,000	100,000	2	368,000	Nov..	1898	.03
96	Sevier, g. s.	Utah.	1,250,000	250,000	5	50,000	April.	1897	.04
97	Shower Con.	Utah.	2,000,000	400,000	5	8,000	Mar..	1899	.02
98	**Sierra-Nevada, g. s	Nev..	300,000	100,000	3	6,706,916	Feb..	1898	.20
99	Silver Age, g. s. l.	Colo..	2,000,000	200,000	10	*			
100	** Silver Hill, s.	Nev..	108,000	108,000	1	2,220,200	May .	1898	.05
101	Silver King, s.	Ariz..	10,000,000	100,000	100	440,000	Oct..	1898	.25
102	Silver Queen, c.	Ariz..	5,000,000	200,000	25	*			
103	Silver State, g.	Colo..	700,000	700,000	1	*			
104	Silver State, s. g. l.	Utah.	100,000	100,000	1	1,000	Sept..	1897	.00½
105	Siskiyou Con., s.	Cal..	2,000,000	200,000	10	46,000	Apr..	1898	.01
106	South Fork Con.	Utah.	50,000	50,000	1	5,000	Mar..	1898	.01
107	Star, g. s.	Utah.	1,000,000	200,000	5	1,000	Mar..	1898	.00½
108	Sunbeam Cons.	Utah.	250,000	250,000	1	23,125	Nov..	1898	.01
109	Tecumseh, c.	Mich.	1,000,000	40,000	25	40,000	July..	1897	1.00
110	Temonj, g.	Colo..	1,000,000	1,000,000	1	*			
111	Tetro	Utah.	300,000	300,000	1	21,000	Jan..	1899	.01
112	Tombstone, g. s. l.	Ariz..	12,500,000	500,000	25	*			
113	Tornado Con., g. s.	Nev..	100,000	100,000	1	*			
114	** Union Cons., g. s.	Nev..	250,000	100,000	2½	2,633,000	Jan..	1899	.03
115	** Utah Cons., s.	Nev..	100,000	100,000	1	475,000	Jan..	1899	.05
116	Victory, g. s.	S. D..	1,250,000	250,000	5	2,625	Nov..	1896	.00½
117	West Granite Mt., s.	Mont.	500,000	100,000	5	*			
118	Work, g.	Colo..	1,250,000	1,250,000	1	*			
119	World, g.	Colo..	1,500,000	1,500,000	1	*			
120	***Yellow Jacket, g. s	Nev..	360,000	120,000	3	5,788,000	May .	1898	.20
121	Yellow Jacket.	Utah.	300,000	300,000	1	1,500	Dec..	1897	.00⅛

G., Gold. S., Silver. L., Lead. C., Copper. B., Borax. * Non-assessable. †The Deadwood previously paid $275,000 in eleven dividends and the Terra $75,000.
§ Bodie, Bulwer and Mono transferred to Standard Cons., January, 1897. Previous to consolidation Bodie paid $1,677,572, Bulwer $190,000, and Mono $12,500.
** Capitalization reduced September, 1898. *** Reincorporated in September, 1898. §§ The old War Eagle Company paid $240,000 in dividends to July, 1897, and levied $32,500 in assessments.
§§§Lillie transferred to an English company in October, 1898; old company paid $134,110 in dividends to September 1, 1898.
NOTE.—This table is corrected up to January 16. Correspondents are requested to forward changes or additions so as to reach us before the end of each month.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT PRICES.

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to Dec. 1st. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Review of Chemicals and Minerals.

	Cust. Meas.	Price.
Abrasives—		
Carborundum, f.o.b. Niagara Falls grains	lb.	$0.15
Powdered	"	.10
Corundum, N. C.	"	.07@.10
Chester	"	.04½@.05
Emery, Turkish flour	"	.03
Grains	"	.05
Naxos flour	"	.03
Grains	"	.05
Chester flour	"	.03
Grains	"	.05
Peekskill flour	"	.01¾
Grains	"	.02½
Crude, Kuluk, best	lg. ton	18.50
Levant	"	22.00
Naxos (Greek) best	"	32.00
Pumice Stone, powdered	lb.	.01½@1.85
Lump, per quality	"	.04@.40
Rottenstone, ground	"	.02
Lump, according to quality	"	.06@.18
Rouge	"	.17@.30
Tripoli, prepared	sh. ton.	12.00
Acids—Acetic, 30% pure	lb.	.02¾
30% ch. pure	"	.06½
80% pure	"	.09
Glacial, pure	"	.10¾
Chem. pure	"	.21
Benzoic, English	"	1.10
German	"	.48
Boracic, pure cryst	"	.09@.10¼
Powdered	"	.09¼@.10¾
Carbolic, cryst. in drums	"	.16
Carbonic, liquid	"	.12½
Chromic, crude	"	.25
Chem. pure	"	.40
Absol. ch. pure	"	1.75
Hydrochloric, ch. pure	"	.08
Hydrofluoric, 36%	"	.03@.04½
48%	"	.05@.06
Best		.25
Nitric, chem. pure	"	.10
Sulphuric, 98%	"	.02
Chem. pure	"	.07
Sulphurous	"	.05
Tartaric, cryst	"	.31½@.32
Powder	"	.32@.32½
Alcohol—94%	gal.	2.40@2.44
Refined wood, 95@97%	"	.75@.80
Purified	"	1.20@1.50
Alum—Lump	100 lbs.	1.65
Powdered	"	2.50
Ground	"	1.75
Chrome, com'l	"	3.50
Aluminum—Nitrate	lb.	1.50
Oxide, com'l	"	.20
Pure	"	.80
Chem. pure	"	1.00
Hydrated	"	.05
Sulphate, pure	"	.02
Ammonia—Aqua, 16°	"	.02¼@.03
18°	"	.03@.03½
20°	"	.03½@.04
26°	"	.05½@.06
Ammonium—		
Acetate, cryst	"	.65
Bromide, pure	"	.52@.53
Carbonate	"	.07¼@.07½
Muriate, gran., white	"	.05¼
Lump	"	.08¼
Gray	"	.05
Nitrate, white, pure (99%)	"	.09
Antimony—Glass	"	.30@.40
Needle, lump	"	.05@.06
Powdered	"	.07@.08½
Oxide, com'l white, 95%	"	.25
Com'l white, 99%	"	.35
Sulphuret	"	.16
Arsenic—White	"	.04@.04½
Red	"	.07¾@.08
Asphaltum—California Ventura	sh. ton	32.00
Cuban, best	"	40.00
Common	"	18.00
Trinidad, refined	"	30.00
Gilsonite, Utah, ordinary	sh. ton	40.00
Select	"	60.00
Barium—Carbonate, lump, 80%	"	25.00
90%	"	27.50
92@94%	"	25.25
96@98%	"	29.00
Powdered, 80%	lb.	.01¾
90%	"	.02
Chloride, com'l	"	.02¼
Chem. pure cryst	"	.05
Chlorate	"	.28
Nitrate, com'l, pow'd	"	.07
Pure, pow'd	"	.07@.08
Oxide, com'l, hyd. cryst	"	.18@.22
Hydrated, pure cryst.	"	.25
Pure, powd.	"	.27
Sulphide	"	.40
Sulphate	"	.02¼@.02¾
Barytes—Crude, No. 1	sh. ton	9.00@10.00
No. 2	"	8.00@8.25
No. 3	"	7.75@8.00
Prime White	"	12.00@15.00
American, floated	"	12.50@18.00
Foreign, floated	"	19.50@21.00
Bauxite—Georgia, f.o.b. cars, first grade	lg. ton	3.25@4.50
Second grade	"	3.00
Alabama, f. o. b. cars Rock Run	"	3.85
Benzole—90%	gal.	1.00@1.10
Bismuth—Oxide, hydr.	lb	2.25@2.56
Nitrate cryst	oz.	.09
Bitumen	lb.	.03½@.05
Bone Ash	"	.02¾@.03½
Borax—		
Cryst. and pow'd	"	.07
Calcined	"	.20
Bromine—		
Bulk	"	.45

	Cust. Meas.	Price.
Cadmium—		
Metallic	lb.	1.90@2.00
Sulphide	"	3.25@4.00
Sulphate	oz.	.14
Calcium—		
Carbide, in ton lots, f. o. b. Niagara Falls, N.Y.	lb.	.03@.04
Acetate, pure white	"	.10
Carbonate, ppt.	"	.05
Chem. pure	"	.75
Chloride	100 lbs.	.90
Sulphite	lb.	.05
Sulphide	"	.20
Cement—		
Portland, Am., 400 lbs	bbl.	1.80@2.00
Foreign	"	1.75@2.50
"Rosendale," 300 lbs	"	.65
Sand cement, 400 lbs	"	1.85@1.95
Slag cement, imported	"	1.65
Ceresine—		
Orange and Yellow	"	.10@.10¼
White	"	.11¼@.13½
Chalk—Com'l, lump	sh. ton	2.00@2.10
Ppt.	lb.	.04@.04½
French	100 lbs.	.30@.35
Chrome Ore—		
(50% chrome) ex ship	lg. ton	24.50
Clay, China—Am. com.	sh. ton	7.50
Am. best	"	8.50
English, common	"	11.00@12.50
Best grade	"	15.00
Fire, ground, f.o.b. Jersey City, N. J.	"	4.00@5.00
Slip Clay, f.o.b. Albany	"	3.00
Cobalt—Carbonate	lb.	1.50
Nitrate	"	1.30
Oxide	"	1.76@1.85
Sulphate	"	.85
Copperas	100 lbs.	.57½
Copper—Acetate, com'l.	lb.	.16@.20
Carbonate	"	.15@.16
Chloride	"	.25
Nitrate, crystals	"	.35
Oxide, black	"	.30
Ppt., pure	"	.50
Red	"	.40
Ppt., pure	"	1.25
Cream of Tarter—crys.	"	.23½@.23½
Granulated	"	.23¼@.23½
Powdered	"	.23½@.24
Cryolite	"	.08½
Explosives—		
Blasting powder, A	"	.08½
Blasting powder, B	"	-05@.05½
"Rackarock," A	"	.25
"Rackarock," B	"	.18
Judson R.R. powder, by carload	"	.10
Dynamite, (40% nitro-glycerine)	"	.15
(50% nitro-glycerine)	"	.17
(60% nitro-glycerine)	"	.19
(75% nitro-glycerine)	"	.23
Glycerine, for nitro (32 2-10° Be.)	"	.10½@.12
Nitro-Benzole	"	.14@.15
Feldspar—Ground	sh. ton	7.00@7.75
Flint—(See Silica).		
Fluorspar—Am. lump	"	7.00
Gravel	"	6.50
Crushed	"	6.00
Ground	"	11.00
Extra fine ground	"	12.50
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—Lump.	100 lbs.	.75
Powdered, in bags	"	.82½
Graphite—(See Plumbago).		
Gypsum—		
Am. gr'd (terra alba)	sh. ton	7.00
Fertilizer	"	4.50
Rock	lg. ton	4.00
English and French	"	14.00@16.00
Infusorial Earth—		
Ground, best qualities	"	20.00@.40.00
Iodine—Crude	100 lbs.	2.55
Resublimed	"	2.90@2.95
Iron—Chromate	lb.	.03@.10
Muriate	"	.05
Nitrate, com'l	"	.01@.01½
Pure	"	.03½@.04½
Oxide	"	.02@.12
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kanit	lg. ton	8.80@9.05
Kryolith—(See Cryolite.)		
Lead—Acetate		
White, broken	lb.	.06⅛
Com'l, broken	"	.05¾
White, gran.	"	.07¼
Nitrate, com'l	"	.06¼@.06¾
Chem. pure	"	.35
Lime—Bldg., ab. 250 lbs	bbl.	.65@.75
Finishing	lb.	.75@.80
Magnesite—		
Crude, lump 94%	sh. ton	8.00
Calcined, foreign	"	25.00
Domestic	"	16.00
Magnesium—		
Metallic, ingots (Ger).	kg.	5.95@6.90
Powdered (Ger.)	"	6.19
Ribbon or wire (Ger.)	"	10.00
Carbonate	lb.	.10
Chloride, com'l	"	.01¾
Fused	"	.20
Nitrate	"	.60
Manganese—		
Crude, powdered, 73@75% binoxide	"	.01¼@.01½
75@85% binoxide	"	.01½@.02½
85@90% binoxide	"	.02½@.03¾
90@95% binoxide	"	.03¾@.05½
Carbonate	"	.16@.20
Chloride	"	.04
Ore, 50%	unit	.21@.22½
Sulphate, powdered	lb.	.25
Pure cryst	"	.46

	Cust. Meas.	Price.
Marble—Flour	sh. ton	8.08
Mercury—Bichloride	lb.	.59@.60
Bisulphate	"	.41
Mica—		
Ground	lb.	.04@.06
Sheets, according to size and quality	"	
Mineral Wool—F. o. b. Stanhope, N. J.:		
Slag, ordinary	100 lbs.	1.00
Selected	"	1.67
Extra	"	4.00
Rock, ordinary	sh. ton	37.00
Selected	100 lbs.	4.00
Extra	"	7.00
Monazite—92%	sh. ton	140.00
Nickel—		
Oxide, black No. 1	lb.	1.00
Black No. 2	"	.60
Green, No. 1	"	1.00
No. 2	"	.60
Oils—Black, reduced 29 gr., 25@30%	gal.	.07@.07½
Black reduced 29 gr. 15 cold test	"	.08@.08½
Black reduced 29 gr. zero	"	.11@.12
Black reduced summer	"	.06½@.07
Smith's Ferry, 33@34 gr.	"	.07½@.08½
West Virginia, 29 gr.	"	.22@.24
Cylinder, dark steam ref	"	.08@.13
Dark filtered	"	.11@.16
Light filtered	"	.13@.15½
Extra cold test	"	.21@.25
Gasoline, 86°	bbl.	13.00@14.00
88°	"	15.00@16.00
90°	"	18.00@19.00
Neutral filtered, lemon, 33@34 gr.	gal.	.13@.18½
White, 33@34 gr.	"	.21@.23
Wool grade, 32 gr.	"	.11@.14
Naphtha, crude, 68@72°	bbl.	5.50
70°	"	6.00
Paraffine, high viscosity	gal.	.20@.25
23½@24 gr.	"	.09¼@.09¾
25 gr.	"	.08¼@.08½
28@32 gr.	"	.06¾@.07¼
Red No. 1	"	.08¾@.09¼
No. 2	"	.08¼@.08¾
Linseed, domestic raw	"	.37@.38
Boiled	"	.39@.40
Calcutta, raw	"	.54
Graphite, lubricating, Am. dry	lb.	.10
In oil	"	.12
Axle grease	"	.08½@.10
Wood grease	"	.05@.06
Ozokerite—Foreign	"	.06@.08
Paints and Colors—		
Benzine, Samatra	"	.35@.40
Marbled	"	.27@.28
Chrome green, common	"	.05@.06
Extra	"	.14½@.15
Yellow, common	"	.10
Best	"	.25
Silica Graphite, thick	"	.12
Thinned	gal.	1.15
Lampblack—Com'l	lb.	.03@.05
Refined	"	.08@.10
Calcined	"	.12@.20
Fine spirit	"	.20@.35
Litharge, Am. powd.	"	.04¾@.05¼
English flake	"	.07¾@.08
Metallic, brown	"	.05½
Red	"	18.00@20.00
Ocher, Am. best	sh. ton	15.00
Dutch, washed	lb.	.04¾@.05
French, washed	"	.01@.01¾
Orange mineral, Am.	"	.07½@.08
Foreign, as to make	"	.08½@.10¾
Paris green, pure	"	.14½@.21½
Red lead, American	"	.05½@.06
Foreign	"	.07½@.08
Shellac, D. C.	"	.28@.30
Native	"	.16@.17
Turpentine, spirits	gal.	.30@.30½
Ultramarine, best	lb.	.25
Vermilion, Amer. lead	"	.14@.16
Quicksilver, bulk	"	.59
Chinese	"	.80@.90
English, imported	"	.70@.90
Artificial	"	.12@.20
White lead, Am., dry	"	.04½@.04¾
In oil	"	.05½@.06
English, in oil	"	.07½@.08¼
Whiting, common	100 lbs.	.35@.40
Gilders	"	.45@.50
Zinc white, Am., ex. dry	lb.	.03¾@.04½
Foreign, red seal, dry	"	.07¾@.08⅜
Green seal, dry	"	.08⅜@.09⅜
Pitch—Coal tar	gal.	.08
Plumbago—American, pulverized, f. o. b., Providence, R. I.	sh. ton	25.00@40.00
Lump	"	8.00
German, lump	100 lbs.	.95
Pulverized	lg. ton	16.50
Ceylon, crude	lb.	.01¼@.01½
Pulverized	"	.02@.03
Potash—		
Caustic	"	.04½@.06
Potassium—		
Metallic, in balls (Ger).	kg.	17.85
Bicarbonate cryst	lb.	.08½
Powdered or gran	"	.12
Bichromate	"	.09¾@.10
Bromide, bulk	"	.44@.45
Carbonate	"	.03@.04
Chromate	"	.35
Cyanide (98@99%)	"	.28
Double manure salts, 48@53% (basis 48%)	100 lbs.	1.03
Muriate, 80@85% (basis 80%)	"	1.78
Permanganate, pure cr.	lb.	.15¼@.15½
Chem. pure	"	.34

	Cust. Meas.	Price.
Potassium—Silicate	lb.	.06
Prussiate, yellow	"	.16@.17
Red	"	.37@.40
Sulphate, 90@95% (basis 90%)	100 lbs	1.99½
Sulphide, com'l	"	.10
Quartz—(See Silica).		
Rosin—Common	gal.	.10
Best	"	.16
Saltpeter—Crude	lb.	.03¾@.04
Double refined	"	.05@.06
Silica—		
Ground quartz	sh. ton	6.75@8.00
Best	"	12.00
Lump quartz	"	2.50@4.00
Silver—Chloride	oz.	.65
Nitrate	"	.41@.42½
Oxide	"	.85@1.10
Slate—Flour	sh. ton	7.50
Sodium—Metallic	lb.	.75
Acetate, com'l	"	.03½
Chem. pure	"	.05⅝
Bichromate	"	.07¾@.08
Bisulphite, com'l	"	.01¼@.02¼
Bromide	"	.49@.50
Chlorate, com'l	"	.09¾@.10
Hyposulphite, com'l	100 lbs.	1.60
Nitrite	lb.	.07½@.07¾
Peroxide	"	.45
Silicate, Com'l	"	.01¼@.01½
Sulphate, gran., puri'd	"	.03
Tungstate, com'l	"	.35
Pure	"	.50
Strontium—Carb., ppt.	"	.13@.14
Nitrate	"	.07½@.07¾
Sulphur—Roll	100 lbs.	2.00
Flour	"	2.20@2.25
Talc—N. C No. 1	sh. ton	15.00@15.50
No. 2	"	10.00@12.00
N. Y., Fibrous	"	8.00@9.00
French, best	"	20.00
Italian, best	"	20.00
Tin—Chloride	lb.	.11@.13
Crystals	"	.14@.14¼
Muriate	"	.06@.08
Oxide, white, ch. pure	"	.30@.32
Uranium—Oxide	"	2.00@3.00
Zinc—Metallic, ch. pure	"	.06¾
Carbonate	"	.15
Chloride	"	.06
Dust	"	.06¾@.08
Sulphate	"	.02@.02¼

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Barium—Amalgam	grm.	$1.19
Electrol	"	5 71
Beryllium—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	oz.	2.50
Boron—Amorphous, pure	grm.	.19
Crystals, pure	"	1.43
Nitrate (N. Y.)	lb.	1.50
Calcium—Electrol	"	4.28
Cerium—Fused	grm.	2.02
Nitrate (N. Y.)	lb.	28.00
Chromium—Fused	kg.	5.95
Pure powder	"	1.79
Chem. pure cryst	grm.	.19
Cobalt—(98@99%)	kg.	5.35@5.71
Pure	"	30.94
Didymium—Powder	grm.	3.81
Nitrate (N. Y.)	oz.	4.00
Erbium	grm.	3.09
Nitrate (N. Y.)	oz.	3.00
Gallium	grain	9.52
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	lb.	2.50
Indium	grm.	4.05
Iridium	"	1.19
Lanthanum—Powder	"	4.28
Electrol, in balls	"	9.04
Nitrate (N. Y.)	oz.	3.50
Lithium	grm.	2.38
Nitrate (N. Y.)	oz.	.60
Molybdenum—Powder	kg.	2.62
Fused, electrol	100 grms.	15.47
Niobium	grm.	3.81
Osmium	"	.95
Palladium	"	.95
Rhodium	"	2.87
Rubidium—Pure	"	4.76
Ruthenium—Pure	"	1.55
Selenium—Com'l powder	kg	26.18
Sublimed powder	"	35.70
Sticks	"	28.56
Silicium—Amorphous	100 grms.	2.87
Crystals, pure	"	7.14
Strontium—Electrol	grm.	6.19
Tantalium—Pure	"	3.57
Tellurium—Ch. p. sticks.	100 grms.	11.90
Powder	"	9.52
Thallium	kg.	23.80
Thorium—Metallic	grm.	7.85
Nitrate 49@50% (N. Y.)	lb.	7.50@8.00
Titanium	grm.	.71
Uranium	"	.48
Nitrate (N. Y.)	oz.	.25
Vanadium—Fused	grm.	1.19
Wolfram—Fused	100 grms.	22.80
Powder, 95@98%	kg.	2.38
Chem. pure	"	7.14
Ore, lump	"	47.60
Powdered	"	42.84
Yttrium	grm.	3.33
Nitrate (N. Y.)	oz.	4.00
Zirconium—Com'l	kg.	119.00
Pure	grm.	.71
Nitrate (N. Y.)	oz.	1.00

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MEETINGS.

THE ANNUAL MEETING OF THE STOCKholders of the Colorado Smelting Company for the election of Directors will be held at the Company's office at Pueblo, Colorado, on Monday, February 13th, 1899, at 12 o'clock noon.
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